

FREQUENTLY ASKED QUESTIONS TECH SHEET

H₂O Pro Pavers® FAQs

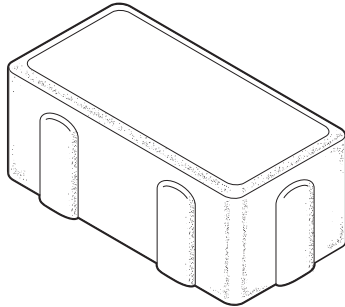


PERMEABLE PAVING UNITS

Unit size: 4-1/8" x 8-1/4"

Thickness: 3-1/8"

Weight per unit: 7.4 lbs.



Q: Do H₂O Pro Pavers® meet design considerations for pedestrians and disabled persons?

A: Permeable pavers can be utilized in installations with non-permeable pavers as part of a system specifically designated for pedestrian paths and spaces for disabled persons. These systems are designed to meet Americans with Disabilities Act (ADA) requirements. Before any paving project is constructed, spaces for disabled people, vehicle lanes, parking spaces and walking or bike paths should be studied, defined and delineated with non-permeable concrete pavers. Non-permeable pavers offer more comfort and easier accessibility in paths and spaces used by pedestrians, disabled people and the elderly.

Q: What infiltration rates can be achieved with H₂O Pro Pavers®?

A: Several factors affect storm infiltration rates and water management, including the amount of water draining onto H₂O Pro Pavers®, the depth (and storage capacity) of the system, the base materials, the infiltration rate of the soil under an open-graded base, and the presence of drain pipes within an open-graded base.

The Interlocking Concrete Pavement Institute (ICPI) offers the following for determining infiltration rates. NRCS Curve Numbers (CN) and Rational Method runoff coefficients ('C' value) used depend on the soil infiltration rate, base storage and design storm. In every case, permeable pavers yield significantly lower CN and C values than impervious pavements.

Curve Number and Rational Method Runoff Coefficients			
Land Cover	Infiltration Rates in./hr (mm/hr)	Curve Number CN	Runoff Coefficient C
Permeable	Up to 50 in./hr (1270 mm/hr) w/maintenance 3-4 in./hr (75-100 mm/hr) w/no maintenance	45-80	0.00-0.30
Impervious Asphalt or Concrete Pavement	0 in./hr (0 mm/hr)	95-98	0.90-0.95

Q: What intensity and duration of storms can be managed?

A: According to research from the Interlocking Concrete Pavement Institute (ICPI), permeable pavers can reduce runoff as much as 100% from a 3 in. (75mm) rain event with sandy soil and a minimum of 12 in. (300mm) thick open-graded aggregate base. Given regional variations in annual rainstorms and base storage capacities, ICPI states that permeable pavers can reduce annual runoff between 30-80%. Conservative design rates of 3 in./hour can be used as the basis for surface infiltration rates with a 20 year life. This design infiltration rate will take in most storms.

Permeable pavers are intended to manage water quantities and pollutants from smaller, more frequent storms such as those with a return period of 10 years or less. These storms tend to be shorter in duration and often have the highest concentrations of pollutants. Permeable pavers are not intended to control flooding from larger, infrequent rainstorms. A well maintained permeable paver application can reduce runoff volumes from intense rain events typically between 70% and 90%.

Q: What is the Solar Reflective Index for permeable pavers?

A: H₂O Pro Pavers® can be manufactured in lighter colors with a Solar Reflective Index (SRI) of at least 29. This helps to reduce urban heat islands (thermal difference between urban and rural areas) by increasing albedo (a measure of the solar energy reflected from a surface). In addition, permeable pavers have substantially higher reflectivity than conventional asphalt pavement and can meet the requirement for less than 50% imperviousness.



FREQUENTLY ASKED QUESTIONS TECH SHEET**H₂O Pro Pavers® FAQs****Q: Are H₂O Pro Pavers® applications eligible for LEED® Credits?**

A: H₂O Pro Pavers® applications are eligible for LEED® credits under the U.S. Green Building Councils (USGBC) guidelines in the following categories:

Sustainable Sites

- Credit 6.1 & 6.2 Storm water runoff reduction
- Credit 7.1 Heat Island reduction

Materials & Resources

- Credit 5.1 & 5.2 Regional materials

Q: Do H₂O Pro Pavers® meet sustainable design performance requirements?

A: H₂O Pro Pavers® comply with U.S. National Pollutant Discharge Elimination System (NPDES) regulations, and meets U.S. Environmental Protection Agency (EPA) storm water performance criteria as a structural best management practice (BMP) while providing parking, road and pedestrian surfaces. H₂O Pro Pavers® are also designed to meet local, state and national storm water design criteria. Permeable pavers can also be designed to provide a water harvesting function which can contribute to the water efficiency credits related to water efficient landscaping and using non-potable water for irrigation.

Q: Can H₂O Pro Pavers® be installed on clay soils?

A: H₂O Pro Pavers® can be installed on most soil types, including slower-draining clay soils. Permeable pavers help to capture first flush runoff in rainfall events and reduce pollution. If soil infiltration is slow (generally under 0.5 in./hour or 4 x 10⁻⁶ m/sec), perforated plastic pipe drains can be installed at the bottom of the base materials to remove excess water while still allowing some of the water to infiltrate into the soil. The drainage rate for the water contained in the base is typically no greater than 24 hours. Over practically impervious soils or high bedrock, an impervious pond liner can be used to detain, filter and release the water through drain pipes. Regardless of the rate of soil infiltration, the filtering action of the open-graded base can reduce water pollutants.

Q: Can H₂O Pro Pavers® be installed in cold climates?

A: Permeable pavers have been in service for years in freezing climates, including Canada and the northern U.S., and have performed effectively by accepting snowplows and salts without paver damage. To ensure high durability in freezing climates, H₂O Pro Pavers® conform to the requirements of ASTM C 936 in the U.S.

With sunshine and above freezing temperatures, ice and snow can melt and immediately soak into the pavement surface. Water does not puddle on the surface and re-freeze. Sand should not be used for foot or tire traction to prevent clogging. Deicing salts should be used sparingly to reduce salt contamination in groundwater. Water that remains in the base typically drains within 24 hours. If the water does freeze before draining, there is adequate space for ice to expand within the open-graded base, thereby minimizing the risk of heaving. If soil heaving does occur, the pavement surface is flexible and should not be damaged from minor upward movement or from resettlement during a thaw.

Q: Is it difficult to maintain permeable pavers?

A: The joints between permeable pavers should be periodically inspected to look for detritus and sediment trapped by the small sized crushed stone. Dirt is typically removed by a vacuum-sweeping street cleaning machine. Cleaning is done when the pavement surface and detritus are dry and can be loosened by sweeping and vacuuming. The frequency of cleaning will vary with the use of the pavement and position of sediment, leaves, etc. from adjacent areas. Cleaning should be done at least once a year, and the surface monitored during the early life of the pavement so that a regular cleaning schedule can be established.





Bowman
Construction
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Cascade
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LOCATIONS & CONTACT INFO

ASP ENTERPRISES

aspent.com
salesasp@aspent.com

BOWMAN CONSTRUCTION SUPPLY

bowmanconstructionsupply.com
salesbcs@bowmanconstructionsupply.com

QUICK SUPPLY CO.

quicksupplyco.com
salesquick@quicksupplyco.com

CASCADE GEOSYNTHETICS

cascadegeos.com
salescascade@cascadegeos.com

St. Louis, MO 636.343.4357
Omaha, NE 402.861.8579
Kansas City, MO 816.554.1191
Wichita, KS 316.393.1554

Denver, CO 303.696.8960
Colorado Springs, CO 719.257.7840
Loveland, CO 970.535.0863

Des Moines, IA
515.289.1271

Portland, OR
971.339.1020

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- Road Grids
- Wall Grids
- Slope Stabilization

Specialty Fabrics

Composite Geomembranes

- GCLs, PVC, HDPE, LLDPE, EPDM, Granular Bentonite

SEDIMENT CONTROL

Inlet Protection

- Grated Inlet, Curb Inlet, Area Inlet Protection

Ditch Checks

- Triangle Silt Dike
- GeoRidge

Perimeter Protection

- High and Low-Porosity Silt Fence, Straw Wattles, Silt Socks
- Safety Fence

Flocculants & Water Treatment

- Polymer-Based & Natural Flocculants

Sediment Basin Skimmers

Dewatering Bags

Trackout Control

- FODS
- Rumble Grates

Turbidity Curtains

EROSION CONTROL

Basic Hydraulically Applied Mulches

- Wood
- Paper
- Blends
- Straw

High-Performance Hydraulically

Applied Products

- BFM
- FGM
- Additives & Tackifiers

Temporary Erosion Control Blankets

- Coir & Jute Mat/Nettings
- Short-Term ECBs
- Extended-Term ECBs

Permanent Erosion Control Blankets

- Turf Reinforcement Mats
- HP-TRMs
- Anchor Reinforced Vegetation System

Structural BMPs

- Transition Mats
- Geoweb Cellular Confinement
- Composite Vegetated Armor System
- Flex MSE Vegetated Wall System
- Articulated Concrete Block
- Gabions
- Grout-Filled Geotextile Mats

Vegetation Establishment

- Native Seed & Turf Seed
- Fertilizers
- Organic Soil Additives
- Stratavault Soil Cells

STORMWATER MANAGEMENT

Water Quality

- Inlet Filter Boxes
- Pre-Treatment Chamber
- Nutrient Separating Baffle Boxes
- High-Flow Biofiltration Media
- Hydrodynamic Separators
- Stratavault

Water Quantity

- Modular Underground Storage Systems
- Chamber Detention Systems

Drainage

- HDPE Swale Liner
- Pipe & Fittings
- Drainage Composites
- Strip Drain

Inlet Structures

- PVC
- Drain Basins, In-Line Drains
- Landscape

Permeable Pavers

- Permeable Articulating Concrete Block
- Grass Pavers
- Gravel Pavers
- Concrete Pavers

SPECIALTY

Natural & Synthetic Coir Fiber Logs

Vegetated Reinforced Soil Slopes

Soil Anchors

Root Barrier System

AquaBlok

Muscle Wall

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