PERMEABLE PAVER & PAVERS AND SLABS WITH WATER INFILTRATION

Permeable paver

(HIGH INFILTRATION CAPACITY)

Design based on recommendations of the ICPI Permeable Paver Guide

Citadin M80 permeable paver

Thickness	3 1/8 in.
Pieces Count per ft²	1,76
Surface opening percentage	7,26%

Avenue permeable paver

Thickness	3 15/16 in.
Pieces Count per ft²	2,06
Surface opening percentage	8%

Turfstone Linia 100 paver

Thickness	3 15/16 in.
Pieces Count per ft²	2,06
Surface opening percentage	55%

Pavers with water infiltration

(MODERATE INFILTRATION CAPACITY)

Citadin M80 paver

Thickness	3 1/8 in.
Pieces Count per ft²	0,92
Surface opening percentage	3,1%

Richelieu M80 paver

Thickness	3 1/8 in.
Pieces Count per ft²	0,92
Surface opening percentage	3,1%

Opus 60 paver

Thickness	2 3/8 in.
Pieces Count per ft²	4,13
Surface opening percentage	6,8%

Slabs with water infiltration

(MODERATE INFILTRATION CAPACITY)

Citadin M60 slab

Thickness	2 3/8 in.
Pieces Count per ft²	0,92
Surface opening percentage	3,1%

Richelieu M60 slab

Thickness	2 3/8 in.
Pieces Count per ft²	0,92
Surface opening percentage	3,1%

The Bolduc permeable pavers meets CSA A231.2 physical and mechanical standards.USEPA (United States Environmental Protection Agency) recognizes permeable paving as one of the best ways to manage surface water.

BOLDUC
CONCRETE PRODUCT MANUFACTURER

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PERMEABLE PAVER Hydro Drain & PAVERS AND SLABS WITH WATER INFILTRATION

PRODUCT DESCRIPTION:

The installation of Bolduc's permeable pavers over an open graded crushed stone base, that acts like a retention reservoir, creates a temporary storage system for surface water runoff. This system can replace traditional impermeable paving in order to control and/or reduce surface water runoff, minimize the need for temporary water retention structures, and improve the quality of surface water runoff. Rainwater recharges the water table, and fewer pollutants and sediments enter waterways, helping the environment.

Bolduc paver models that can be used as permeable paver or as regular residential paver.

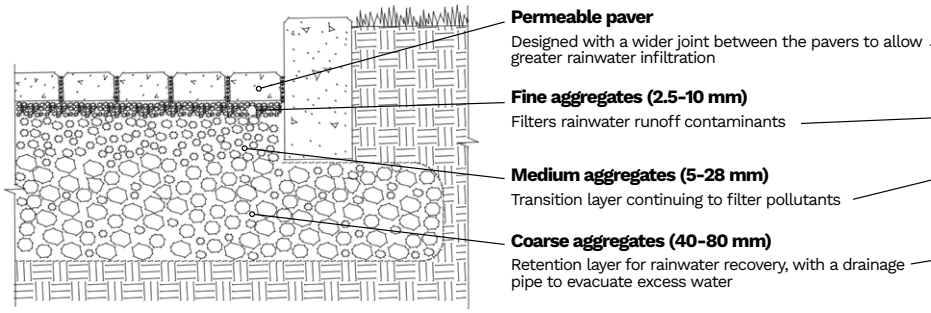
AN EXAMPLE OF PERMEABLE PAVERS

The preferred option is to let the water that gets stored in the crushed stone reservoir infiltrate the native soil. This can be accomplish if the following conditions are achieved :

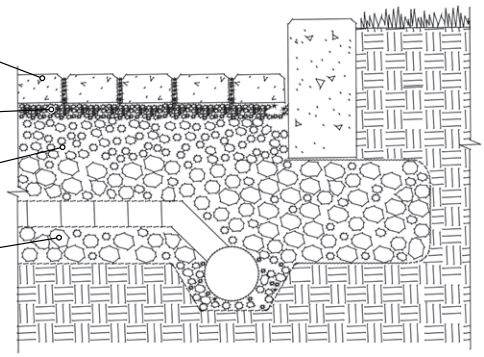
- Native soil (sub grade) below the reservoir must have a water permeability greater than 0.5 inches/hr.
- The base of the crushed stone reservoir must be flat.
- The crushed stone storage system must be at least 2 feet above the water table and more than 100 feet from a drinking water supply (well).
- The paved surface of the storage system must have a slope of at least 1% but no more than 5%.

In some cases water can't or must not be absorbed by the existing soil and must instead be redirected toward a more conventional wastewater collection network. In such cases, the system acts as a retention structure, designed to reduce peak flows in the surface water collection network.

Permeable Pavement with Full Infiltration to Soil Subgrade



Permeable Pavement with Partial Infiltration to Soil Subgrade



PERMEABLE PAVER & PAVERS AND SLABS WITH WATER INFILTRATION

PERMEABLE PAVER DESIGN

The reasons for using a permeable paving system must be clearly established. It must be determined if the system allows for complete or partial water infiltration into native soil. When designing a permeable paving system, it is common practice to include a secondary surface water control system to manage surplus water not dealt with by the permeable paving system when precipitation exceeds levels anticipated during the design process.

Once the basic parameters have been established, the permeable paving system is then designed, taking into account site conditions such as precipitation data (for recurrence and intensity) and affluent runoff surfaces other than the paving surface itself (if applicable), as well as the runoff characteristics of these surfaces. These datas allow the designer to establish the flow and volume of water that will percolate through the permeable joints between the pavers and be collected in the crushed stone reservoir beneath the pavement.

Characteristics that are representative of the system's long-term absorption capacities must be used in the design stage. For applications where a periodical joints maintenance program will apply (rehabilitation of original permeability of joint material) and where permeability of natural soil is high, infiltration rates of 5 inches/hour and more can be used in design. Otherwise, the recommended conservative long-term infiltration rate for the design stage is 1 to 3 inches/hour.

Surface runoff is directed toward the crushed stone reservoir via openings (joints) in the paving system. AASHTO no. 9 crushed stone is used as a bed face for the pavers and to fill the joints between them. The bed face is generally 1 to 2 inches thick.

AASHTO number 9 grading

Nominal size (Sieves with square openings)	**Pourcent passing%**
3/8 in.	100
No. 4	85 to 100
No. 8	10 to 40
No. 16	0 to 10
No. 50	0 to 5

For pedestrian and low vehicular application like residential driveways, sidewalks, patios, the stone reservoir is generally made up of AASHTO no. 57 crushed stone with a void percentage of at least 32%—preferably 40%—to allow water to be stored inside. The thickness of the reservoir normally varies from 6 to 12 inches depending on anticipated traffic loads and surface water runoff. When water running over the pavement is to be absorbed by the native soil, a permeable geotextile membrane is usually placed below the stone reservoir. When the water collected cannot be absorbed by the existing soil, an impermeable membrane is installed at the bottom of the open graded base.

For application where medium to high vehicular circulation is expected, a sub base is generally added to the pavement structure. The sub base is generally made up of open graded AASHTO no. 2 crushed stone with a void percentage of 32 to 40%.