



ENVIRO

COLLECTION



*Sustainable Development & Permeable Paving
for a Better Tomorrow*

RINOXINC.COM

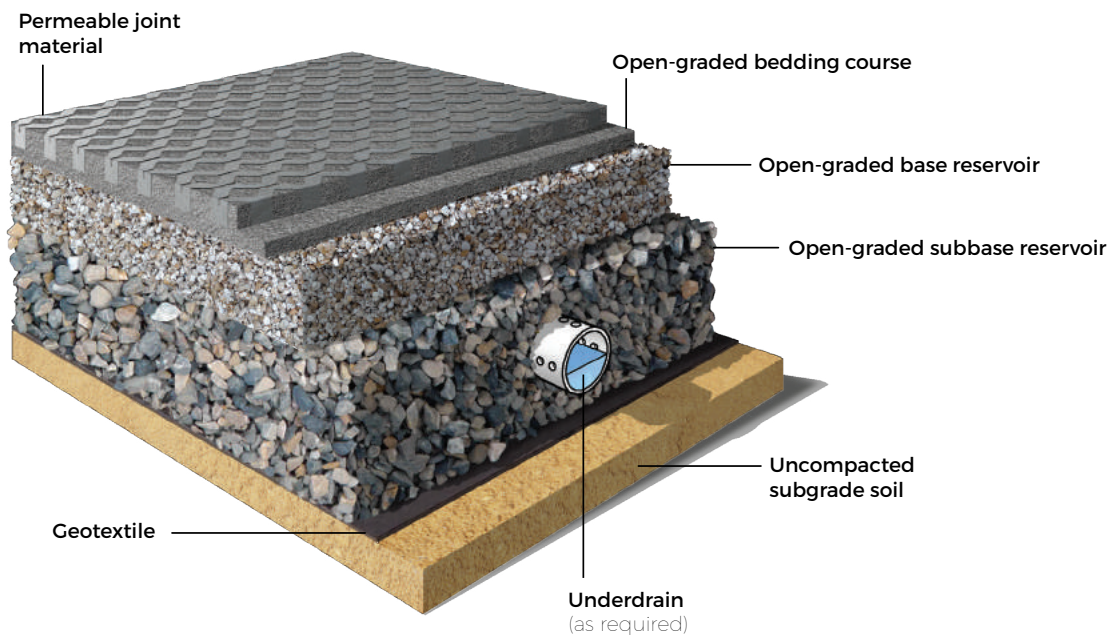


LITTLE ABOUT PERMEABLE PAVING

Sustainable Development is defined by conducting economic development without depleting natural resources. In other words: meeting the needs of the present, without compromising the needs of the future. Rain and snow carry pollutants which in flush into our drainage systems. These pollutants contaminate the water affecting aquatic life, fishing, and even our drinking water.

This is where permeable pavers come into play. They control storm water on the surface, therefore reducing runoff and improving water quality by naturally filtering pollutants through the sub layers.

In older times, paving systems were not recommended when a job site required certain water management. However, thanks to permeable paving systems like Rinox's Enviro Collection, pavers are more widely available and encouraged for a wide variety of job applications due to their ease of maintenance, durability and aesthetics.



Benefits



OF PERMEABLE PAVERS

Today's world has seen an increase in demand for impermeable surfaces which limits the recharging of the natural water reserves and reduces environmental pollutants in our lakes and rivers.

RINOX ENVIRO PERMEABLE PAVERS :

- Create a surface that allows water to penetrate the ground.
- Aid in managing storm water runoff.
- Reduce or even eliminate the need for traditional drainage and water detention systems.
- Mitigate runoff, TSS (Total Suspended Solids), pollutant loads and capture “first flush”.
- Reduce storm runoff, therefore refilling ground water reserves.
- Prevent soil erosion.
- Are aesthetically pleasing.
- Are functional and environmentally friendly.
- Help avoid surface floods by allowing water to drain through.
- Require little to no Maintenance.
- Are covered by our lifetime product warranty.
- Can contribute towards LEED points.
- Help reduce heat island effect (when wet, they can lower temperatures through evaporative cooling).
- Can accommodate all native soil types.
- Have a low impact development (LID).

RINOX ENVIRO PRODUCTS



COMMON APPLICATION OF RINOX ENVIRO COLLECTION:

- Residential (sidewalks, parks, driveways)
- Commercial (parking lots, outdoor shopping areas)
- Industrial (trucking terminals, fire stations)



We have combined the high quality, innovative products Rinox is known for and merged them to Permeable paving elements to introduce an exclusive line of sustainable, Eco friendly Permeable paving systems. Not only are these products environmental friendly, they have the aesthetic appeal and innovative designs of our traditional products.

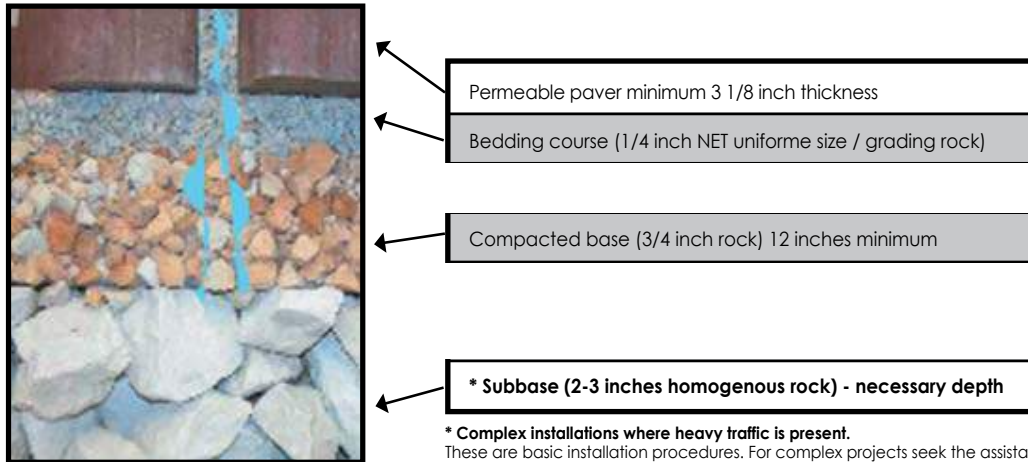
PERMEABLE PAVER INSTALLATION

THESE ARE COMMON INSTALLATION PROCEDURES. DEPENDING ON YOUR PROJECT CRITERIA, WE SUGGEST YOU CONTACT A LANDSCAPING PROFESSIONAL.

Contributes to LEED points system (up to 7 points possible) for water efficiency, materials and resources, innovative design; 100% of water can be returned to its source; possibility of creating a water basin to use for future irrigation on premises; No curing time - Can be used immediately after installation; eliminates the need for sewage systems.

TO REMEMBER :

No compacting the original soil (sand and clay); Application of Geotextile and drainage where needed; Excavate and compact base course with standard ICPI methods; Pavers must be filled with aggregate and not with stabilising sand.



* Complex installations where heavy traffic is present. These are basic installation procedures. For complex projects seek the assistance of landscape architect or the ICPI.

TYPE OF SOIL	WATER INFILTRATION (INCHES/HOUR)	COEFFICIENT OF WATER FLOW
PERMEABLE PAVERS	50 in/hr WITH MAINTENANCE • 4 in/hr WITHOUT	0.00 - 0.3
REGULAR PAVER OR ASPHALT	0 po/hr	0.90 - 0.95

SIEVE SIZE / PERCENT PASSING

ASTM NO.8 SIEVE FOR STONE BEDDING AND JOINT FILLERS

12.5mm (1/2 in.) / 100 • 9.5 mm (3/8 in.) / 85 to 100 • 4.75 mm (No.4) / 10 to 30 • 2.36 mm (No.8) / 0 to 10 • 1.16 mm (No.16) 0 to 5

ASTM NO.57 BASE - GRADING REQUIREMENT

37.5mm (1 1/2 in.) / 100 • 25 mm (1 in.) / 95 to 100 • 12.5 mm (1/2 in.) / 25 to 60 • 4.75 mm (No.4) / 0 to 10 • 2.36 mm (No.8) 0 to 5

ASTM NO.2 SUBBASE - GRADING REQUIREMENT

75mm (3 in.) / 100 • 63 mm (2 1/2 in.) / 90 to 100 • 50 mm (2 in.) / 35 to 70 • 37.5 mm (1 1/2 in.) / 0 to 15 • 19 mm (3/4 in.) 0 to 5

1. EXCAVATION

- 1.1 First and foremost, be sure to contact all water, electric and gas utilities to determine the location of any cables, wires or pipes in the area to be excavated.
- 1.2 Be certain that your excavation is on a slant to ensure proper drainage. We suggest a minimum slope of 2 degrees (1 inch for every 8 feet)
- 1.3 The contour of the excavation must exceed the surface to be paved by at least 12 inch. The depth of the excavation depends largely on the composition of your soil. These steps and the use of borders will provide maximal stability.
- 1.4 Level the bottom of the surface using a rake. No matter what the type of original soil, avoid compacting.

2. FOUNDATION

- 2.1 Spread stone required according to ASTM No.2 in successive 4 inch intervals and compact. This is the sub base aggregates. At this point install drainage if required.
- 2.2 Spread stone required according to ASTM No.57 in successive 4 inch intervals and compact. This is the base aggregates.
- 2.3 It is important to ensure that no contamination of soil occurs during the whole process.
- 2.4 It is strongly recommended to pass the plate compactor in a criss-cross pattern a few times to obtain the best possible result.

3. BORDERS

- 3.1 Place your borders in a row along the entire length where they are to be installed. Install the first unit in a straight line and with a piece of cord, align it to your end point.
- 3.2 In order to minimize paver cuts, place the first row of pavers on the ground in order to determine the starting position of borders on the opposite side.

PERMEABLE PAVER INSTALLATION

4. STONE BEDDING

- 4.1** The preparation and levelling of the stone bedding is the final step before the installation of the paving stones.
- 4.2** Spread between 15 and 25 mm (5/8 - 1 inch) of aggregate according to ASTM no.8 keeping in mind that the stone bedding will be reduced by 3/8 pouce after the compacting of the installed paving stones.
- 4.3** Level the ASTM no.8 aggregate using two pipes of 1 inch in diameter and straight plate. The precision of this levelling will have a direct and important impact on the final result.

5. PAVING STONE INSTALLATION

- 5.1** Place the paving stones according to the chosen design. Always begin with a 90 degree angle. Be sure to choose paving stones from various skids in order to obtain a more uniform result.
- 5.2** Due to the raw materials used and the manufacturing process, there may be slight variation in colour from skid to skid. Verify the alignment at every row and make adjustments as needed.
- 5.3** Should you need to make cuts, use a mini-guillotine or cement saw. The use of security goggles is recommended when cutting. Cuts should be lightly slanted inwards in order to place the pavers with greater ease. Stone cutting should not be done in proximity to installed pavers because the dust caused can permanently stain the pavers.
- 5.4** Upon completion of paver installation, it is suggested to spread a very fine aggregate on the entire work surface before compacting with a vibrating plate in a criss-cross pattern. In order for the surface to be uniform, it is important that the pavers be embedded solidly into the aggregate beneath.
- 5.5** After passing the vibrating plate, using a broom sweep the chosen aggregate according to ASTM standards for drainage to achieve the water runoff desired.
- 5.6** Left-over aggregate and paving stones should be kept in case of need at a later date.

ASTM NO. 8 Grading Requirement

SIEVE SIZE	PERCENT PASSING
12.5 mm (1/2 in.)	100
9.5 mm (3/8 in.)	85 à 100
4.75 mm (NO.4)	10 à 30
2.36 mm (NO.8)	0 à 10
1.16 mm (NO.16)	0 à 5

ASTM NO. 57 - BASE Grading Requirement

SIEVE SIZE	PERCENT PASSING
37.5 mm (1 1/2 in.)	100
25 mm (1 in.)	95 à 100
12.5 mm (1/2 in.)	25 à 60
4.75 mm (NO.4)	0 à 10
2.36 mm (NO.8)	0 à 5

ASTM NO. 2 - SUBBASE Grading Requirement

SIEVE SIZE	PERCENT PASSING
75 mm (3 in.)	100
63 mm (2 1/2 in.)	85 à 100
50 mm (2 in.)	10 à 30
37.5 mm (1 1/2 in.)	0 à 10
19 mm (3/4 in.)	0 à 5