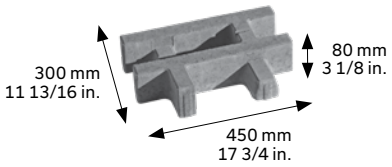
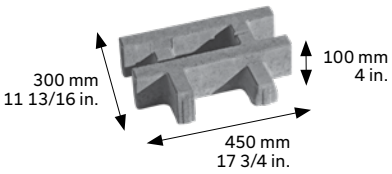
Ecological Pavers

SPECIFIC DETAILS

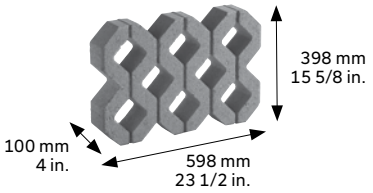
CASSARA VERDE



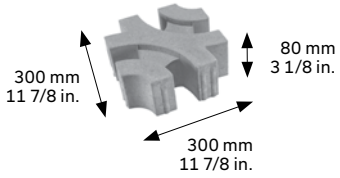
BOULEVARD VERDE



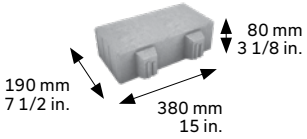
TURFSTONE



VIRAGE



ZEN



RESIDENTIAL VEHICULAR VEGETATED PAVEMENTS INCORPORATING PAVERS WITH MULTI-CAVITY

Whether they are filled with clean aggregates to improve water infiltration into the soil or vegetated to reduce urban heat islands and capture harmful CO2 from the air, permeable pavers allow you to create an environment-friendly space tailored to your taste.

ADVANTAGES

> Significantly reduces heat island effects
> Better management of rainwater: slow-down of runoff water
> Improves air quality
> Create more natural and soothing spaces for the population

APPLICATIONS

> Residential parking, driveways, picnic areas and pedestrian walkways

IMPLEMENTATION

Filling paver cells: Soil mix for grassing, sodding and tree planting. Professional blend composed of mineral soil, sand, fibrous black earth and compost. Available at bulk landscape suppliers, specialized garden centres and soil mix manufacturers. Fill the cells. Pass vibrating plate. Water the surface. Spread the grass seeds.

GRASS SEED : two recommended brands
Minimum maintenance blend (2-week germination): 63% Fescue, 20% Perennial Ryegrass, 17% Kentucky Bluegrass
Sports field blend - high traffic resistance (3-week germination): 65% Kentucky Bluegrass, 20% Fescue, 15% Perennial Ryegrass

SEED BED

Cover the grass seeds with a maximum of 10 mm of soil mix for grassing, sodding and tree planting, then water slightly.

FERTILIZERS: NITROGEN (N), PHOSPHORUS (P), POTASSIUM (K)

Application of fertilizers is recommended for the first year. An organic-based fertilizer is adequate. The following ratios (N-P-K) may be used: 4-1-2, 3-1-1, 2-1-1 (formulation example: 19-6-4)

GERMINATION COVER FOR SEED BED PROTECTION

A woven fabric designed to protect the seed bed allows moisture retention and prevents soil erosion during heavy rains.

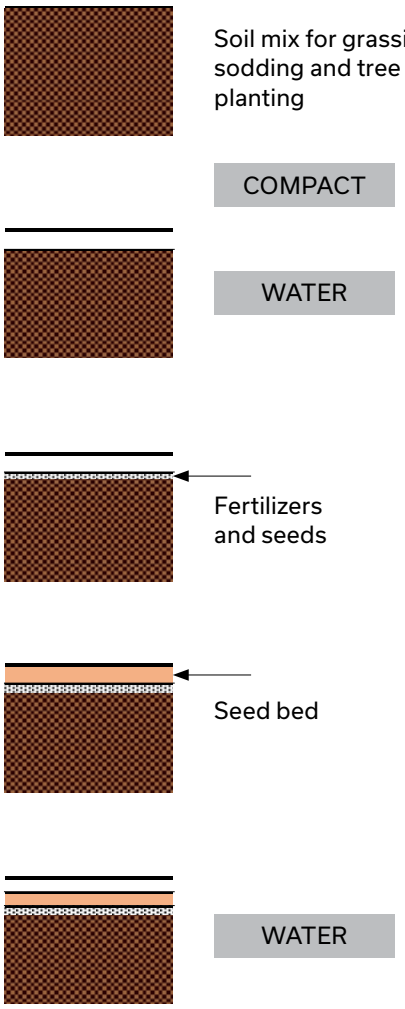
IRRIGATION

During the first year of implementation, you must provide an irrigation system for 7 to 8 weeks.

Then irrigate as needed in the morning such that the soil throughout the depth of the cells is moistened.

Product	Void Opening	Infiltration Rate
Cassara Verde Paver	50%	N/A
Boulevard Verde Paver	50%	N/A
Turfstone Paver	40%	2544 in./hour
Virage Paver	47%	N/A
Zen Paver	27%	N/A

PLANTING DIAGRAM OF LAWN GRASSES IN ECOLOGICAL PAVERS



STAGES OF FILLING AND ESTABLISHMENT OF GRASS

> Fill the cells with soil mix for grassing, sodding and tree planting
> Spread without compacting
> Level with the paver surface
> Apply (vibrating plate with rubberized protection)
> Compact the pavers (vibrating plate with rubberized protection)
> Water to obtain soil packing enabling the addition of the seed bed
> Ensure 5-10 mm of clearance under the paver surface and adjust (if required)
> Spread out fertilizers and seeds
> Spread the seed bed and level
> Water lightly to moisten the seed bed

NOTE: The seed bed is the soil mix for grassing, sodding and tree planting. Shown here on the left are the grass filling and planting steps. The succession of steps should prevent the seeds from being more than 10 mm below the seed bed so that they do not rot.

MAIN INTERVENTION TO MAINTAIN THE INITIAL VEGETATION IN PLACE

EXTENSIVE APPROACH WITH MINIMAL MAINTENANCE REQUIRED:

> A traditional vegetation planting approach: selection of undemanding plants
> One fertilization per year: from irrigation process to planting
> Minimal interventions for natural growth of the vegetation in the cells

INTENSIVE APPROACH WITH MULTIPLE INTERVENTIONS (GREATER CHANCE OF SUCCESS):

> A traditional approach of planting vegetation (grass)
> Regular irrigations in season (mandatory in drought period)
> Periodic manual weeding (preferred)
> Replacement of vegetation as needed (reseeding)
> Addition of soil mix annually
> Regular fertilization in season

USE OF HERBACEOUS PERENNIALS TO REPLACE LAWN GRASSES

It is important to note that the turf installed in the ecological pavers is demanding in terms of water and fertilizer and is not very resistant to dryness. Intensive maintenance interventions approach increase the chances of success. In addition, hardy ground cover crops that are very drought-resistant and low in fertilizer may provide a better alternative.

In this sense, several plants were selected and tested to establish their drought resistance and their demand for water and fertilizer. Overall, the plants that we propose here exceed the potential of the more demanding lawn. The use of these plants should be considered when an extensive approach (minimal maintenance interventions) is recommended.

> Veronica Repens
> Pilosella aurantiacum (hawkweed)
> Sedum album *Coral Carpet*
> Thymus serpyllium *Magic Carpet*
> Sedum acre

TIPS

> Use plants produced in multi-cell at the rate of 2 per single alveolus
> Cutting implantation (for SEDUM) is possible and takes root more quickly
> Plants exposed to full sun will have smaller leaves than normal because they adapt
> Plants are available in specialized horticultural centers (Aux Aubepines for example)
> The substrate (potting soil) to be considered must not contain an excessive mineral component

MAINTENANCE RECOMMENDATION

SEASONAL IRRIGATION

Irrigation is necessary during the first year of planting

MOWING

Mowing to 8-10 cm - 3 and 4 in. is recommended for the entire growing season. Avoid mowing during drought periods.

WEEDING CONTROL

Extensive approach: leave what nature provides
Intensive approach: manual weeding can be performed in season

FERTILIZATION PROGRAM (N-P-K)

Proceed with at least one fertilization per year (extensive approach). For optimal results, three fertilizations per year are required.

ADDING SOIL MIX

Addition of soil mix is performed from the end of August to mid-September as well as in the spring. It maintains fertility and restores the filling level (if packing is observed) for optimum clearance (6 to 10 mm) below the paver surface.

RESEEDING

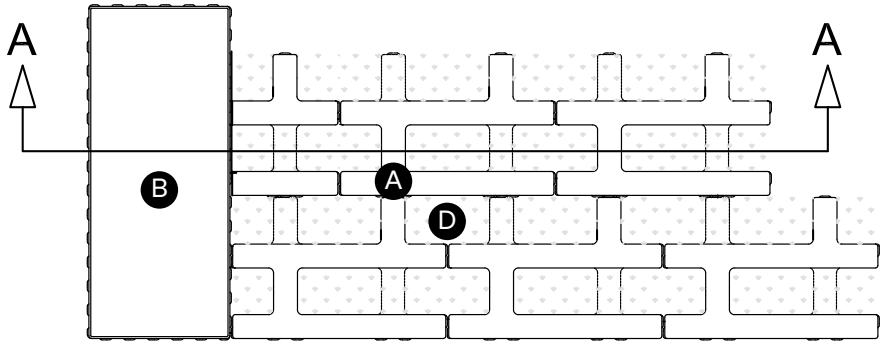
Increases grass density. The dense presence of vegetation associated with a strong root system avoids compaction. Reseeding is performed at the same time as the addition of soil mix, between mid-August and mid-September and in the spring.

WINTER

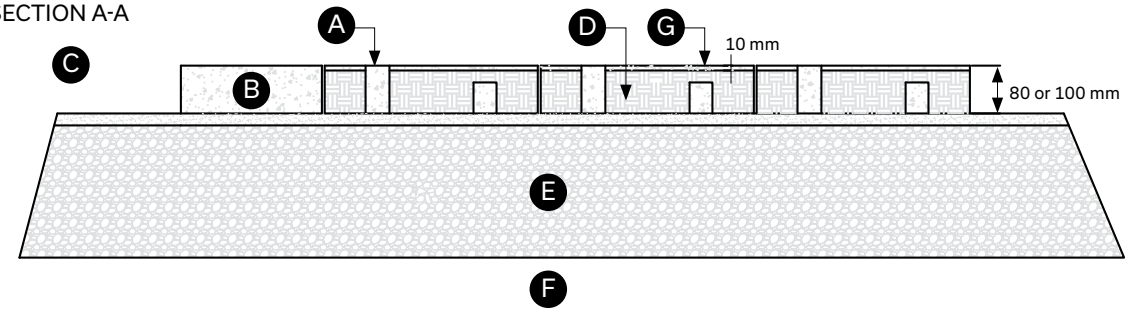
De-icing salts application is prohibited. Ice clumps under vehicles are also a threat to the plants. Snow removal height must be adapted to leave a tamped snow cover of 2 to 4 cm, which will protect the plants from cold spells and prevent their uprooting during snow removal.

CASSARA VERDE AND BOULEVARD VERDE PAVERS CROSS-SECTION - DRIVEWAY

PLAN VIEW



CROSS-SECTION A-A



- A Cassara Verde paver (80 x 300 x 450 mm) or Boulevard Verde paver (100 x 300 x 450 mm)
- B Cassara Large Rectangle paver or Boulevard paver
- C Installation bed 12 to 25 mm: clean stone, 9.5 mm - 3/8 in.
- D Soil mix for grassing, sodding and tree planting (inside the multi-cavity).
  The soil mix is also used as seed bed (for grass).
- E 20 mm - 3/4 in. clean stone compacted to 95% modified Proctor
- F Existing soil with adequate bearing capacity (minimum of 150 kN/m^2)
- G Maximum clearance of 10 mm under the paver surface

NOTE: The Cassara Verde paver can be used in combination with Cassara Large Rectangle, Esbelto, Melville, Mondrian, Trafalgar and Vendome pavers. The Boulevard Verde paver can be used with Agora, Boulevard and Vertex pavers.

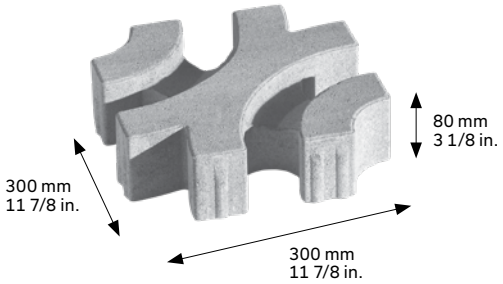
Virage Paver

DESCRIPTION

The unique Virage pavers, inspired by European innovations, transform any exterior design into a true architectural masterpiece. With only a single paver, six laying patterns are possible, each more creative than the other.

Whether they are filled with clean aggregates to improve water infiltration into the soil or vegetated to reduce urban heat islands and capture harmful CO2 from the air, Virage pavers allow you to create an environment-friendly space that reflects your image.

UNIT



LAYING PATTERNS

The eight patterns are created with the singular Virage Paver unit, simply by rotating it. Virage Paver is always installed in a stack bond pattern, which means all the units are installed on top of one another with the joints in the same position.

All following patterns start in the same way: by laying down the first Virage unit like shown below (follow the red corner). Next, install the second Virage unit, either in the same angle or with a 90° rotation (so, turn it once), according to the chosen pattern. Then, continue the section as many times as necessary to cover the area of the project.

Base unit:

BEADED PATTERN

CIRCLE PATTERN

LINK PATTERN

MOSAIC PATTERN

RANDOM PATTERN

WAVE PATTERN

FLOWER PATTERN

CLOVER PATTERN

BEADED PATTERN

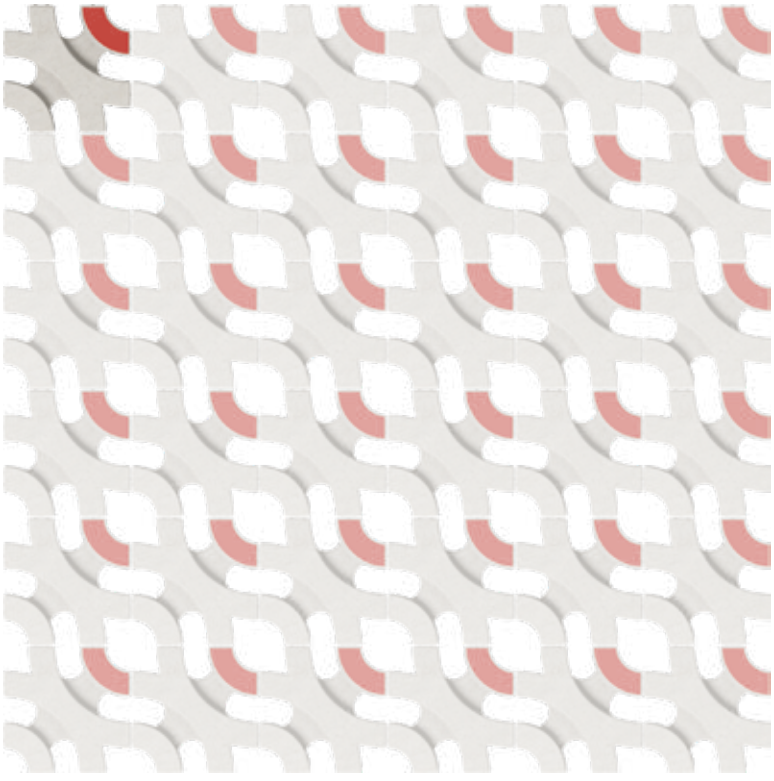
Beaded pattern is created by installing all the units in the same 0° angle:

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down all units, red corner at the top right (0°)



CIRCLE PATTERN

Circle pattern is a 2 x 2 section that repeats itself:

1

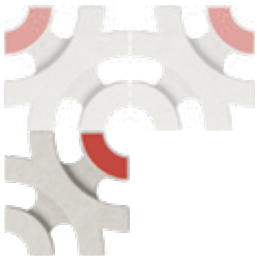
Lay down the first unit, red corner at the top left (90°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit below, red corner at the top right (0°)

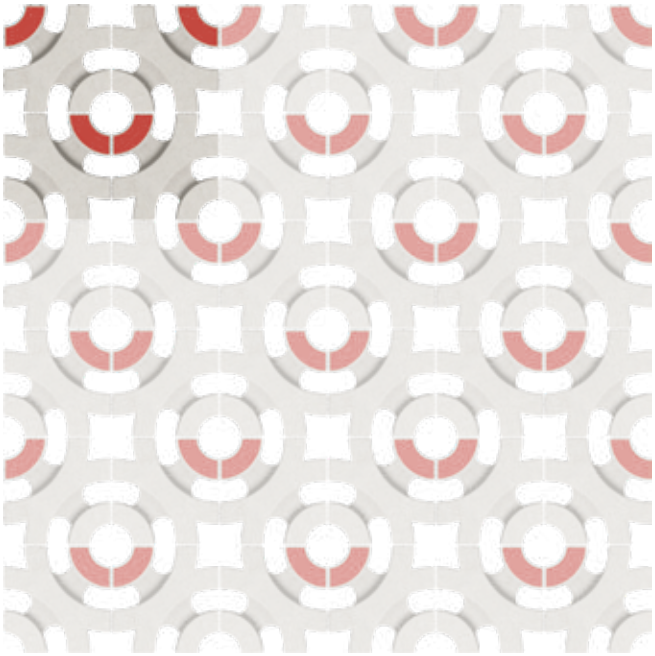


4

Lay down the fourth unit on the right, red corner at the top left (90°)

5

Repeat the section as many times as needed to complete the project



LINK PATTERN

Link pattern is a 5 x 2 section that repeats itself:

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

Lay down the fifth unit on the right, red corner at the top right (0°)

6

Lay down the sixth unit below, red corner at the top right (0°)

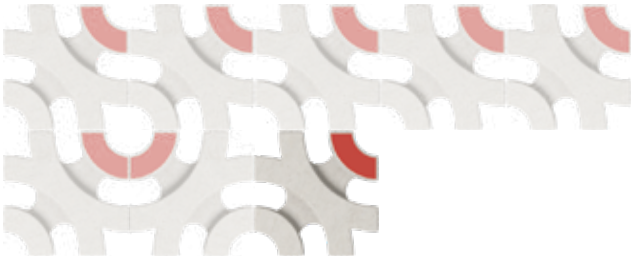
7

Lay down the seventh unit on the right, red corner at the top left (90°)

LINK PATTERN - CONT'D

8

Lay down the eighth unit on the right, red corner at the top right (0°)



9

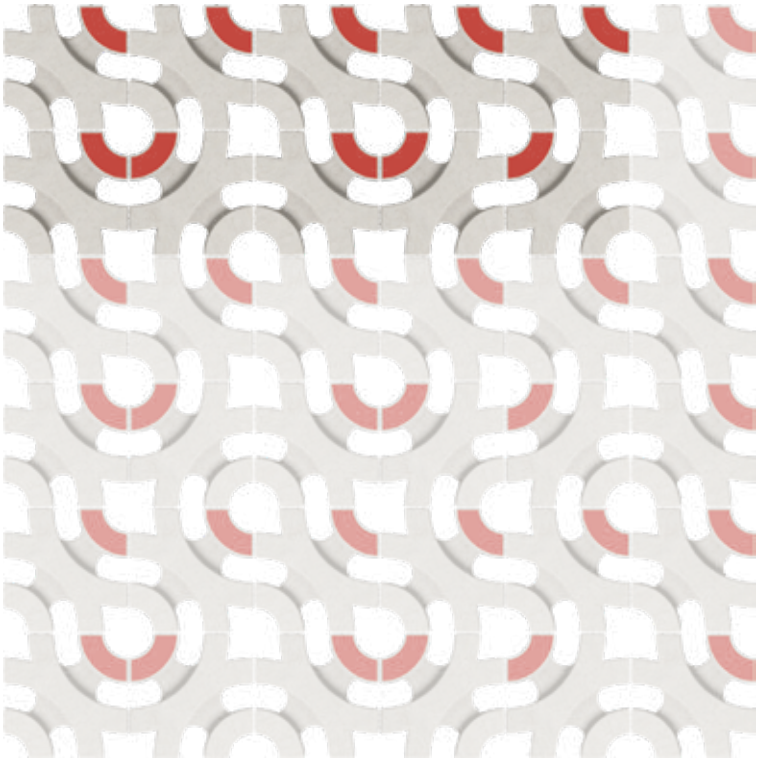
Lay down the ninth unit on the right, red corner at the top left (90°)

10

Lay down the tenth unit on the right, red corner at the top left (90°)

11

Repeat the section as many times as needed to complete the project



MOSAIC PATTERN

Mosaic pattern is a 6 x 6 section that repeats itself. For explanation purposes, the section is broken down in 6 rows of 6 units wide:

Row A: 6 x 1

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

Lay down the fifth unit on the right, red corner at the top left (90°)

6 Lay down the sixth unit on the right, red corner at the top left (90°)

MOSAIC PATTERN - CONT'D

ROW B: 6 x 1

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top left (90°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

Lay down the fifth unit on the right, red corner at the top left (90°)

6 Lay down the sixth unit on the right, red corner at the top left (90°)

ROW C: 6 x 1

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

Lay down the fifth unit on the right, red corner at the top right (0°)

6 Lay down the sixth unit on the right, red corner at the top right (0°)

MOSAIC PATTERN - CONT'D

ROW D: 6 x 1

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

Lay down the fifth unit on the right, red corner at the top right (0°)

6 Lay down the sixth unit on the right, red corner at the top right (0°)

ROW E: 6 x 1

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

5

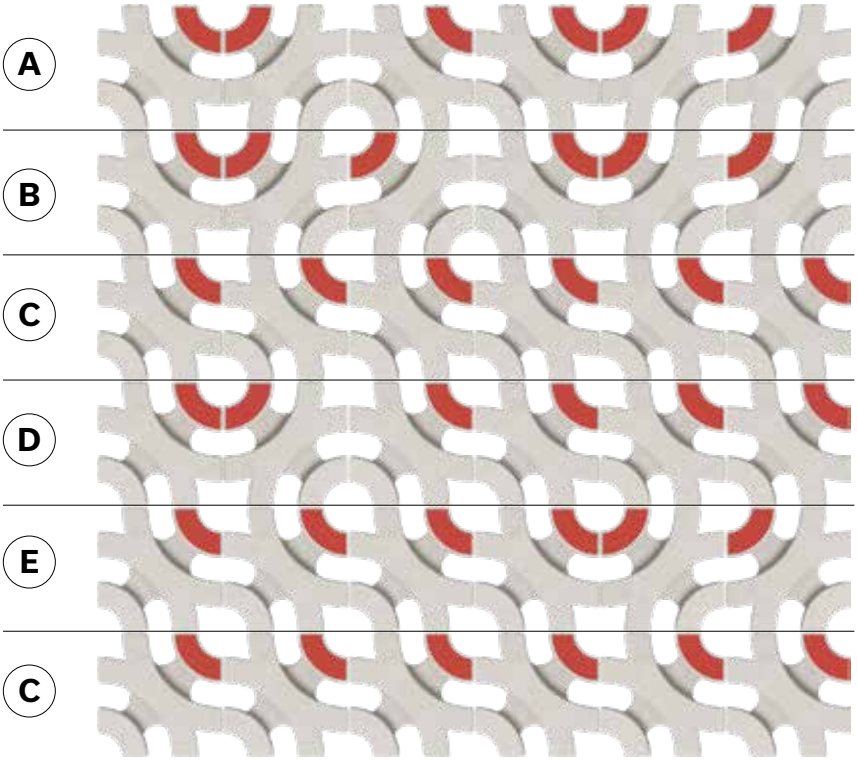
Lay down the fifth unit on the right, red corner at the top left (90°)

6 Lay down the sixth unit on the right, red corner at the top left (90°)

MOSAIC PATTERN - CONT'D

COMPLETE SECTION

Repeat the section in order A-B-C-D-E-C as many times as needed to complete the project



RANDOM PATTERN

Random pattern is a 3 x 3 section that repeats itself:

1

Lay down the first unit, red corner at the top right (0°)

2

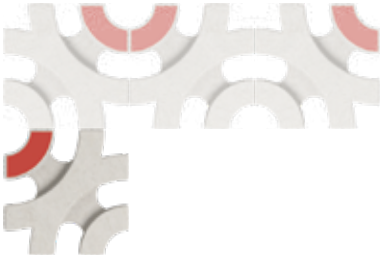
Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

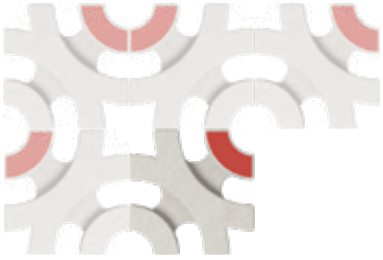
4

Lay down the fourth unit below, red corner at the top left (90°)



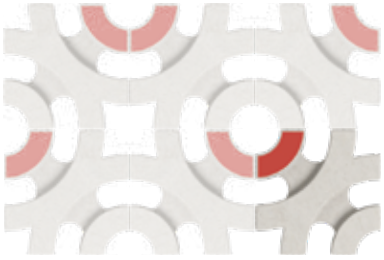
5

Lay down the fifth unit on the right, red corner at the top right (0°)



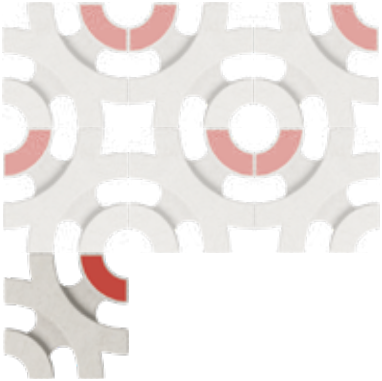
6

Lay down the sixth unit on the right, red corner at the top left (90°)



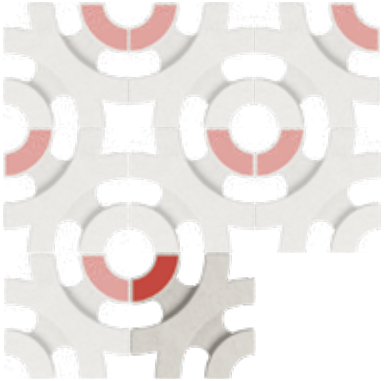
7

Lay down the seventh unit below, red corner at the top right (0°)



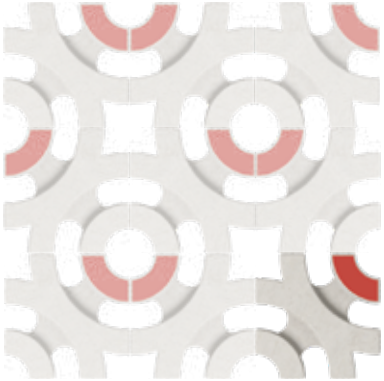
8

Lay down the eighth unit on the right, red corner at the top left (90°)



9

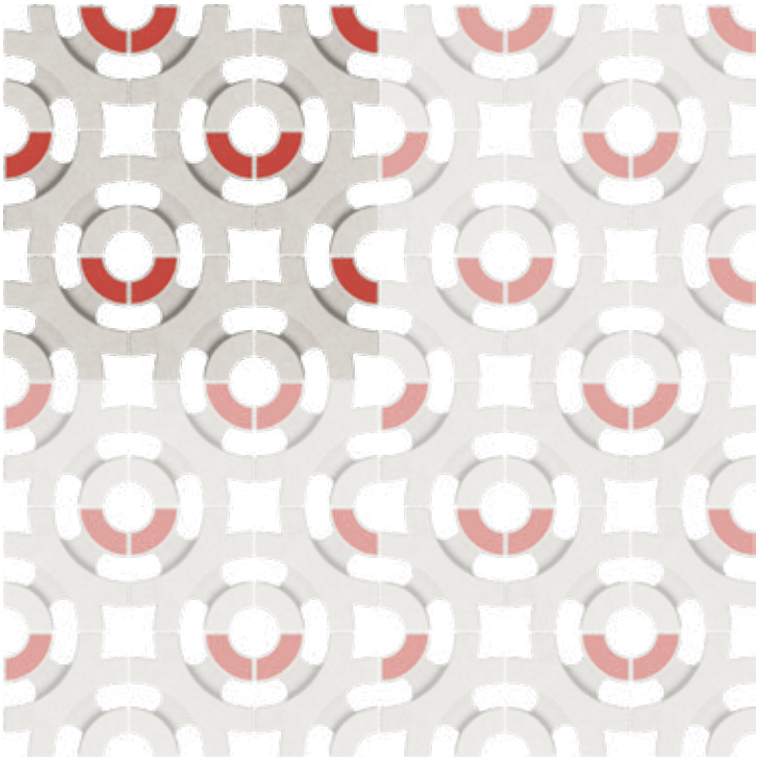
Lay down the ninth unit on the right, red corner at the top right (0°)



RANDOM PATTERN - CONT'D

10

Repeat the section as many times as needed to complete the project.



WAVE PATTERN

Wave pattern is a 2 x 1 section that repeats itself:

1

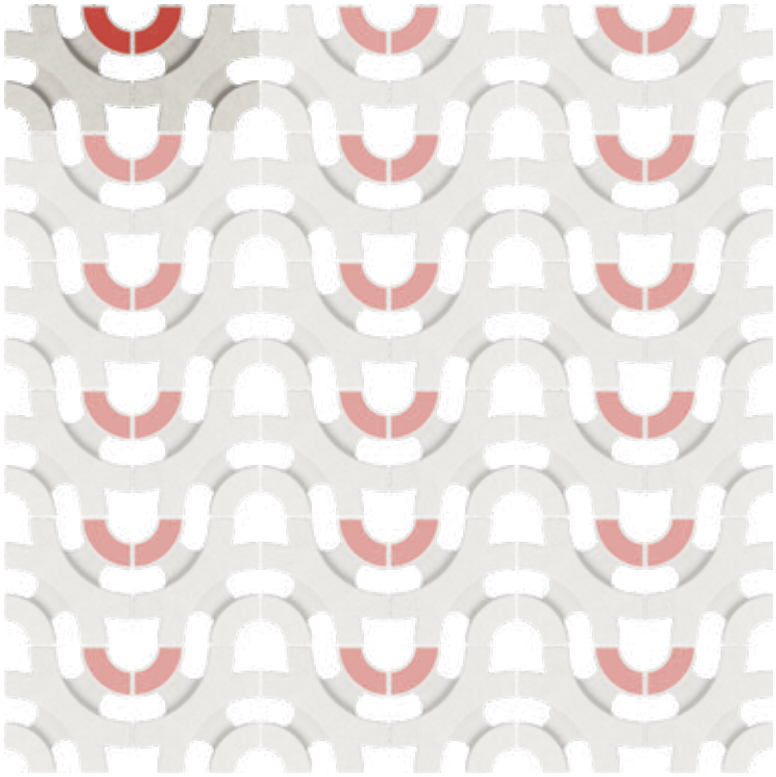
Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Repeat the section as many times as needed to complete the project.



FLOWER PATTERN

Flower pattern is a 4 x 4 units section that repeats itself. For explanation purposes, the section is broken down in 4 rows of 4 units in width:

Row A: (4 x 1 units)

1

Lay down the first unit, red corner at the top left (90°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

Row B: (4 x 1 units)

Repeat steps 1 to 4 of Row A

FLOWER PATTERN - CONT'D

Row C: (4 x 1 units)

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top left (90°)

4

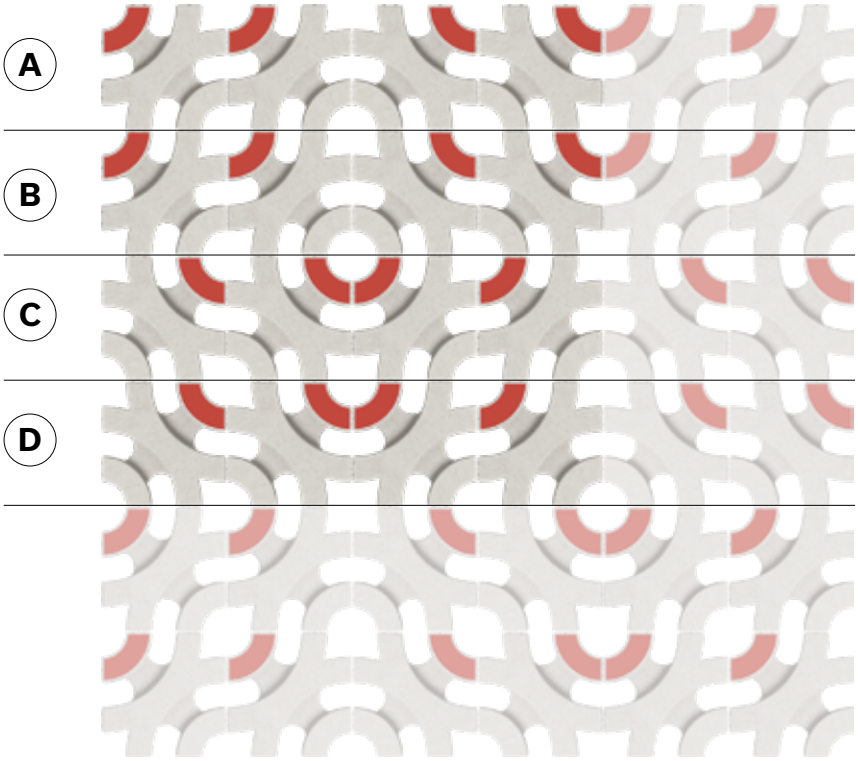
Lay down the fourth unit on the right, red corner at the top left (90°)

Row D: (4 x 1 units)

Repeat steps 1 to 4 of Row C

COMPLETE INSTALLATION

Repeat the section in order A-B-C-D as many times as needed to complete the project



CLOVER PATTERN

Clover pattern is a 4 x 4 units section that repeats itself. For explanation purposes, the section is broken down in 4 rows of 4 units in width:

Row A: (4 x 1 units)

1

Lay down the first unit, red corner at the top left (90°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top left (90°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

CLOVER PATTERN - CONT'D

Row B: (4 x 1 units)

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top right (0°)

3

Lay down the third unit on the right, red corner at the top left (90°)

4

Lay down the fourth unit on the right, red corner at the top left (90°)

Row C: (4 x 1 units)

1

Lay down the first unit, red corner at the top left (90°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top right (0°)

CLOVER PATTERN - CONT'D

Row D: (4 x 1 units)

1

Lay down the first unit, red corner at the top right (0°)

2

Lay down the second unit on the right, red corner at the top left (90°)

3

Lay down the third unit on the right, red corner at the top right (0°)

4

Lay down the fourth unit on the right, red corner at the top left (90°)

COMPLETE INSTALLATION

Repeat the section in order A-B-C-D as many times as needed to complete the project