

# FLOORING THAT CHANGES THE RULES

TECHNICAL CATALOGUE



Certified by **POLITECNICO**  
MILANO 1863



**MACEVI**  
Costruisce il futuro



**THE INNOVATIVE  
SYSTEM THAT PURIFIES  
RAINWATER**

# MULTI-PURPOSE FLOORING LINE FOR EXTERIORS WITH ZEOLITE



The architectural block in filtering concrete for the implementation of modular outdoor flooring.

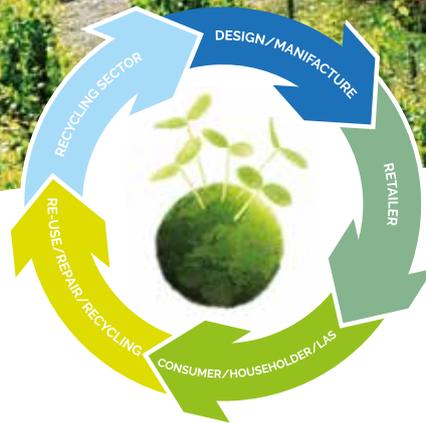


The draining filling for wide joints characteristic of 100% draining floors.



The permeable to fill the joints of concrete blocks of any thickness and type.





## THE GREEN TURNING POINT

The ecological transition processes arise from little and big innovations oriented to eco-sustainability and environmental protection. Starting from this awareness, **ZeoCity line of blocks and aggregates for outdoor flooring can activate natural processes which lead to the reduction of air, soil and groundwater pollution.** All the aforementioned, while maintaining high aesthetic value and harmony with the surrounding contest.

ZeoCity finds its own origin in the desire to implement a decisive “green turning point” within the urban environment and to improve the quality of life in the diverse natural, residential or industrial spaces, using 100% recyclable and recoverable products in compliance with the Minimum Environmental Criteria of Construction, with a view to favouring the affirmation of a circular economy aimed at reducing waste to the minimum and extending the life cycle of materials.



All this is allowed by Zeolite (Clinoptilolite), a mineral rock which is present within the products of ZeoCity line. Zeolites are known to be catalysts, as they have a high surface area thanks to which the quantity of molecules that can be processed is 100 times higher than the quantity processed by a traditional amorphous catalyst. They can also act as molecular sieves thanks to their selectivity. The cation exchange capacity, the reversible dehydration and the structural porosity are the properties of zeolite.

**The studies conducted by MA.CE.VI, in collaboration with Politecnico di Milano, confirmed that the use of Zeolite inside concrete blocks leads to filter almost all of the sedimentable substances and other contaminants which mainly derive from the dissolutions existing in the atmosphere, liquid leaks from vehicles and residues from the**



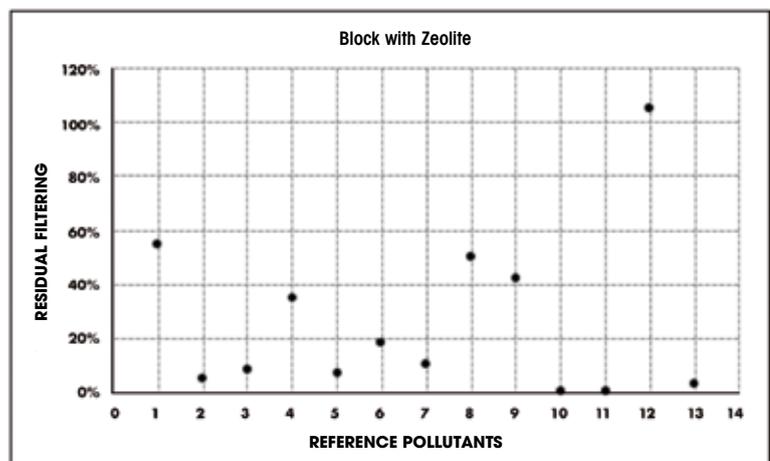
**functioning of mechanical machinery** which, during rainy events, are washed away and discharged directly into the sewer, thus negatively affecting the aquatic habitats and the biodiversity of aquatic species.

The graph below, drawn up with the participation of Politecnico di Milano, shows the percentages according to which ZeoFloor and ZeoRock retain pollutants:



Department of Civil and Environmental Engineering  
Department of Architecture, Construction Engineering and Built Environment

PARAMETER	Code	%
MINERAL OIL (C10- C40 hydrocarbons]	1	58%
ZINC	2	98%
COPPER	3	95%
ARSENIC	4	62%
LEAD	5	98%
IRON	6	85%
CADMIUM	7	94%
CHROME	8	98%
NICKEL	9	60%
MANGANESE	10	100%
BENZO(a)PYRENE	11	100%
NITRATES	12	10%
PHOSPHATES	13	98%





**The architectural block in filtering concrete for the implementation of modular outdoor flooring.**

**The eco-compatibility of our products is due to their durability, affordability, recyclability.**

Our products are made through the use of cold production methods that lead to significant energy savings, thus allowing to obtain quality products without using high-temperature ovens.

Such systems are dry laid, therefore without the use of cementitious binders, sealants or resins; the laying of the flooring may be done manually or by means of small automated machines, which make assembly faster but still with minimal emissions.

Furthermore, **all our paving are resistant to slipping, de-icing salts and abrasion.**

All filtering floors in blocks and concrete slabs produced by MA.CE.VI. have a variable content of secondary raw materials coming from recycled materials, to an extent that varies from 5% up to a

**100% recoverable and recyclable**

maximum of 35%. For this reason, **CAM (Minimum Environmental Criteria), the environmental and ecological requirements defined by the Ministry of the Environment aimed at addressing the Public Administrations towards a rationalisation of consumption and purchases, through the provision of instructions for the identification of design solutions and products or services that are environmentally better, were certified.**

MA.CE.VI.'s cycle of sustainability is a closed cycle as the product itself and, consequently, **its components may be reused indefinitely.**

**Furthermore, our paving, in their light colours, avoid the absorption of sunlight (reflectance), thus leading to a reduction of the heat island effect and promoting greater liveability in urban centres.**



It may be possible to use ZeoFloor in these products upon request.

#### Paving in blocks and slabs

I Viali

Corso Italia

Le Corti

Le Corti Stone

Lastra

Uni H8

Mattone H8

Tristacker H8

Tristacker H10

Binderò

#### Antique style floors

Antika

Antika Stone

Carvedstone

#### Draining floors

Dedalo

Drenablock

Legodrain

Acciottolato

Grigliato

## ZeoFloor TiO<sub>2</sub>

## Self-cleaning hydrophilic photocatalytic

ZeoFloor is usually manufactured in a double layer of high-strength concrete and titanium dioxide.

**Titanium dioxide, besides reducing the pollution in the atmosphere caused by nitrogen oxides (NOx), has the property of decomposing any organic substances deposited on the surface of the floor.**

Such characteristic makes it possible to **keep the filtering surface free and to convey any organic substances** (transformed into nanometric particles), **together with water, inside the flooring where they will be purified by the Zeolite.**

TiO<sub>2</sub> can also “split” the O<sub>2</sub> particle of the water (drop), thus avoiding runoff and the consequent transport of any solid pollutants to the collection points and **creating a film that is completely absorbed by the flooring.**

**Therefore, the titanium dioxide maintains the characteristics of the flooring unaltered and this means that the flooring, as and when exposed to sunlight, activates the properties of ZeoFloor: photocatalytic, self-cleaning and hydrophilic.**



zeorock20/30/40

The draining filling for wide joints characteristic of 100% draining floors.

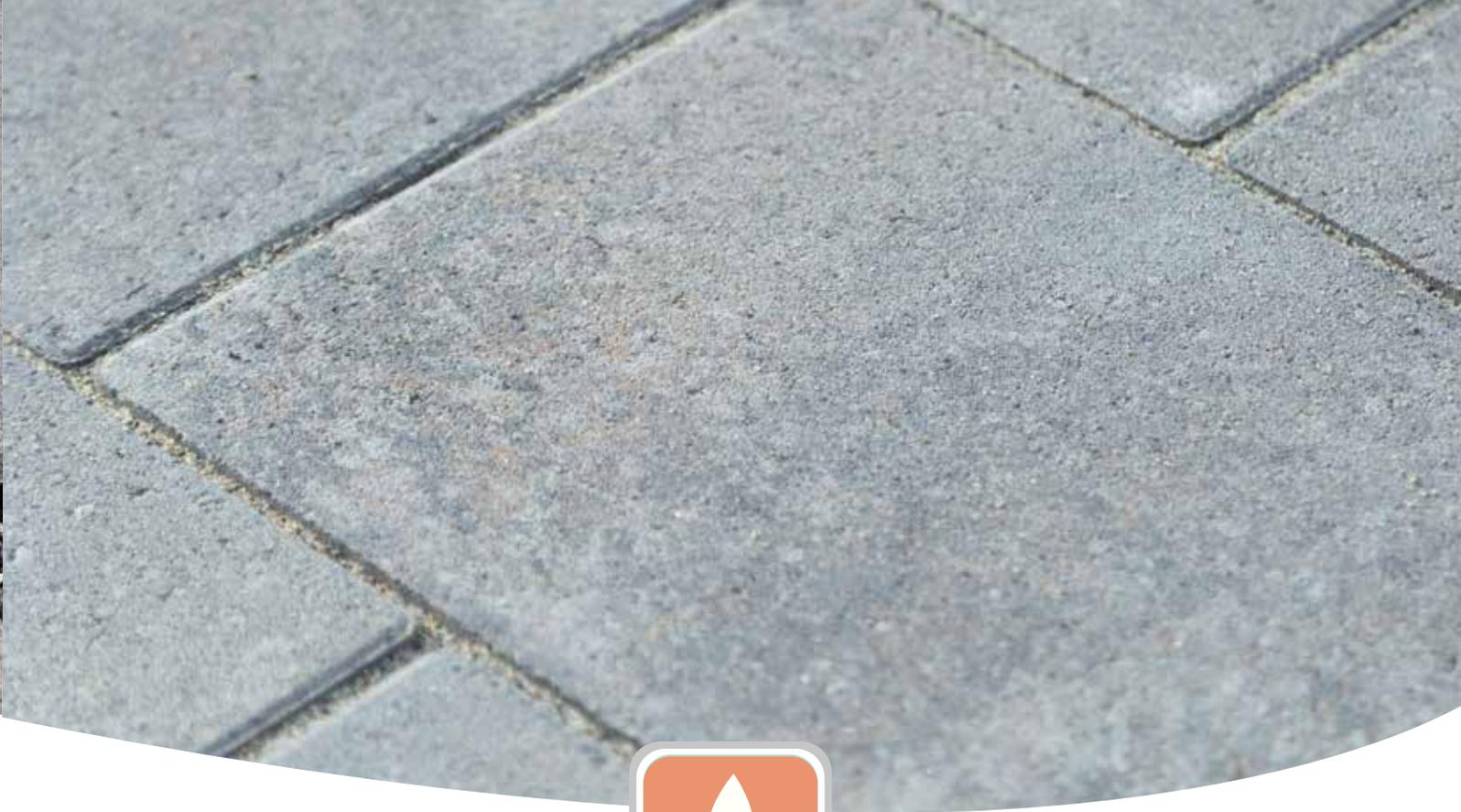
**ZeoRock is a compound of zeolite and lava basalt for wide joints.**

Suitable for flooring in draining blocks with “wide joint” or with internal holes, ZeoRock is a product originating from a combination of zeolite, lava basalt and other substances increasing the action on pollutants.

**100%** recoverable  
recyclable  
draining capacity

ZeoRock20, ZeoRock30 and ZeoRock40 originate from the different concentration of such materials, the use of which is connected with the characteristics of any diverse fields of application: **the choice of the most suitable product depends on the height of the water table, on the composition of the subsoil, on the residential or industrial environment and on the proximity to sensitive areas**(schools, hospitals or parks).

ZeoRock is supplied in 1,500 kg big bags.



zeogrind40

**The permeable to fill the joints of concrete blocks of any thickness and type.**

**ZeoGrind has the function of retaining and purifying the pollutants existing in rainwater through the use of innovative aggregates.**

**It is a complementary accessory for filling joints in paving blocks and concrete slabs of parking lots in commercial areas, busy streets and residential streets.**

The presence of zeolite **allows to treat wastewater, to remove organic substances and phosphates and to carry out other important actions including the absorption of toxic ammonia, hydrogen sulphide and heavy metals** (lead, copper, cadmium, zinc, manganese and iron), **the reduction of chlorinated hydrocarbons and nitrogen concentrations, the improvement of oxygen values in the water and the prevention of sediment clogging.**

**100% recoverable  
recyclable**

ZeoGrind represents an innovative response to the provisions of the Minimum Environmental Criteria (CAM) in Construction, which are increasingly oriented to improving environmental and social performance through the treatment of rainwater, its reintegration into the groundwater and its purification.

**It is a 100% recoverable and recyclable product.**



## CERTIFICATIONS AND QUALITY BRANDS



MA.CE.VI's corporate quality management system complies with the UNI EN ISO 9001 standard and is certified by ICMQ for the production of vibrocompressed concrete blocks of various types, slabs and kerbs.



Any products indicated with this mark are controlled and certified by ICMQ for the specific technical performance included in the reference standards: UNI EN 1338 for blocks, UNI EN 1339 for slabs, UNI EN 1340 for kerbs.

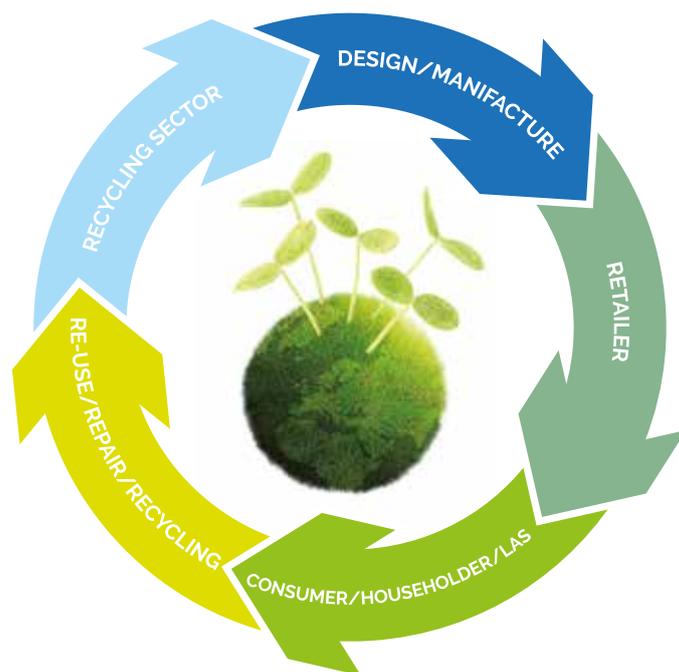


Any products indicated with this mark are controlled and certified by ICMQ for the specific technical performance included in the reference standards: UNI EN ISO 14021:2016 for construction products with declared percentage of recycled/recovered/by-product material - ICMQ Special Regulation for product certification relating to construction products with declared percentage of recycled/recovered/by-product material - CP DOC 262 and UNI EN ISO 14021:2016 "Environmental labels and statements - Self-declared environmental claims (Type II environmental labelling)".

### CAM



All construction products that are endowed with an EN approved reference standard are subject to the obligation of CE marking in order to be placed on the market: MA.CE.VI products are not only compliant with the minimum requirements required by law, but comply with the higher performance classes envisaged by the performance standards, although not mandatory.



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MA.CE.VI. reserves the right to make improvements and changes to its products. The colours of any materials reproduced in the print herein are to be deemed as merely illustrative. Any efflorescence, small surface cavities and chromatic differences between the elements are to be deemed as peculiarities of concrete products and in no way constitute a defect. Any variations in shade and/or grain size are part of the nature of the product and do not constitute a defect.

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and / s.p.a.



è una linea

**MACEVI**  
Costruisce il futuro

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