

# PRIMA MATERIA

CONCRETE



KRONOS  
USA

KRONOS GREEN APPROACH



CO2 REDUCTION

In the last 10 years Kronos has reduced its CO2 emissions by no less than 17%. New investments for a further reduction are planned, using techniques for reutilizing heat generated during the production process and creating energy by cogeneration.

GREEN ENERGY

Kronos uses Green Energy. All electricity used at Kronos plants is obtained from cogeneration and hydroelectric power station.

RECYCLING PROCESS: ZERO WASTE

Kronos tiles are produced following a specific process that allows the addition of recycle content to the layer body of the tiles. This makes possible for Kronos to use pre-and-post consumer waste to create a body layer and thus a high quality tile. Kronos tiles and slabs consist of 35% recycled material, depending on the product. The pre-consumer recycling system is 100%. Post-consumer recycling is under study and some preliminary trials should start shortly.

LOCAL RAW MATERIALS

Kronos obtains most of its natural raw materials for tile production in the american territory. All the raw materials come from a radius of 800 Km/ 500 MI from the production plants.

H2O MANAGEMENT AND PURIFICATION

All waste-water is reused through the manufacturing process, this is already 100%.

RECYCLED/RECYCLABLE PACKING MATERIAL

All our paper packaging materials are made from recycled paper and are further recyclable. Kronos uses "Heat treatment certified pallets" that are disinfected by heat and not by poisonous gas.

LIFE CYCLE ASSESSMENT

The Life Cycle Assessment (LCA) is also known as an "eco-balance" or cradle-to-grave-analysis and it's the investigation and evaluation of the environmental impact of a given product or service caused or necessitated by its existence. Kronos tiles and slabs have a very long-life cycle. From a technical point of view, Kronos tiles and slabs may be used for many hundreds of years without losing their looks or their technical quality.

Innovation and design play a major role at Kronos. Kronos has developed specific systems to install its Porcelain Pavers without cement, glues, mortar or other setting materials both on floors and walls. It is no longer necessary to grout the joint line between Kronos Porcelain Pavers as our products can be dry settled.

The elimination of setting materials allows significant savings in terms of costs of transportation and time for the installation.

The job sites are immediately available after the Kronos Porcelain Pavers are dry installed, while the use of traditional setting materials requests time and cure after the collocation. Kronos Porcelain Pavers dry installation also significantly reduces the creation of dusts and pollutants. People living in spaces where the Kronos Porcelain Pavers are laid, are less prone to allergies and respiratory problems that may be caused by breathing residual dusts and moisture caused by traditional settings methods.

INTENDED USES

POPA 2.0 is a product with high aesthetic and technical characteristics, adaptable and functional for any outdoor enviroment.

COMMERCIAL AREAS:

Dehors, swimming-pools, beach resorts, walkways, pathways, events and exhibitions, parking lots, etc...

RESIDENCIAL AREAS:

Patios, terraces, gazebos, swimming-pools, oriental gardens, stairs, rooftop, car parks, etc...

LEED CREDITS



Kronos Porcelain Pavers are produced in the U.S., the manufacturing plants are located in Tennessee. The factory is member of the U.S. Green Building Council, which is an organization that promotes buildings that are environmentally responsible, profitable and healthy places to live and work.

**RECYCLED CONTENT**, MR Credit 4.1 and 4.2 (2 LEED points). Kronos USA products are produced with 35% of pre-consumer recycled materials.

**REGIONAL MATERIALS**, MR Credit 5.2 (2 LEED points are granted if the use of local raw material is equal to 20% of the total value of the raw materials).

These Credits are applicable for buildings constructed within 500 miles (804.5 km) from the factory. The 49% of whole Kronos USA raw materials are quarried in the 500 miles radius. Therefore Kronos USA products contribute for 49% of their value to the LEED Credits of this Section.

**HEAT ISLAND EFFECT** (Non roof), SS Credit 7.1 (1 LEED point). The great majority of Kronos USA products do not contribute to change the energy balance of the environments where installed. They do not produce any Urban Heat Island Effect, thanks to its very good physical properties Solar Reflectance Index SRI ≥ 29.

**LOW EMITTING MATERIALS**, EQ Credit 4.2 (1 LEED point). No traces of VOC (Volatile Organic Compounds) are present in Kronos USA tiles (as certified by the external labs in charge of the tests).

**INNOVATION IN DESIGN**, ID Credit 1.1-1.4 (1-4 LEED points). Kronos USA tiles are produced in manufacturing plans which have got the prestigious ecological mark ECOLABEL (EU Regulation 2002/272/EC). These plants vant the environmental management systems compliant to ISO 14001:2004 and EMAS (European Council Regulation 761/2001).

These environmental standards guarantee excellence in terms of:

- safeguard of the environment;
- continuous improvement of the environmental performances of Kronos USA products and manufacturing sites;
- healthcare of Kronos Usa workers and customers.

WHY CHOOSE POPA 2.0?

- Lighter and easier to handle than concrete blocks
- Superior in fire resistance and durability to wood tiles
- Superior in strength and impact resistance to ceramic tiles
- Supports over 2000lb
- More cost effective than grating or grid structures for elevated paving installations
- Resistant to damage by frost, snow, ice and heat (-40°f - 210°f)
- Removable and reusable
- Available in a broad range of colors/styles
- Installation on single ply membranes
- Massive over life cost savings
- Inspectable and removable
- Easy to install
- Easy to clean stain, chemical and salt resistant
- Fade resistant
- Slip resistant and quick draining
- Virtually no maintenance
- Thermal insulation (hot/cold)
- The slight gap between gres slabs allows a quick water drainage
- Best acoustic
- Insulation
- It allows for planar and uniform surfaces with no uneven levels or visible water drainage systems (grids or water discharge pipes).
- Less load bearing in attics and on balconies as the last layer of concrete and glue is not necessary

PRIMA  
MATERIA

CONCRETE



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USA

# Why choose 2.0 Porcelain pavers



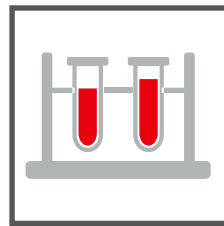
Thermal shock resistance.



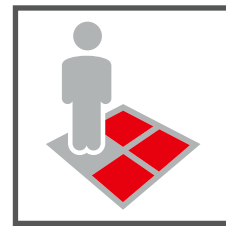
Frost resistance.



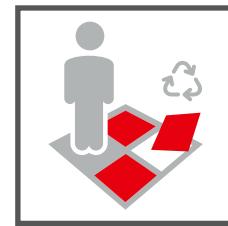
Fire resistance.



Resistant to stains, acid and chemicals.



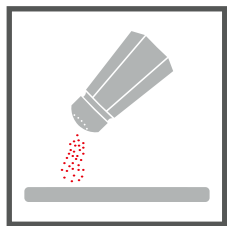
Easy to install.



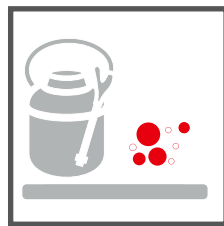
Removable and reusable.



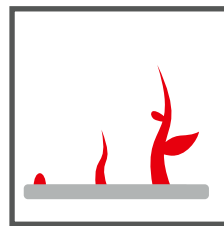
Virtually no maintenance.



Resistant to corrosion from salt.



Resistant to attack from mould, moss and verdigris treatments.



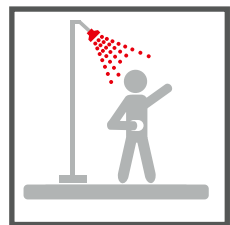
Resistant to discoloration and formation of dark halos.



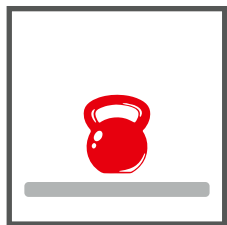
Easy to clean.



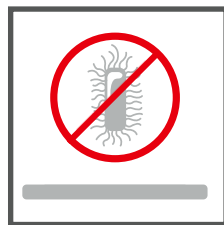
Slip resistance.



Dry, wet, and submerged applications.



High breaking load.



Hypoallergenic. No VOC.



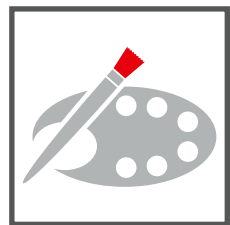
Easy to sterilize.



Eco-friendly maintenance.



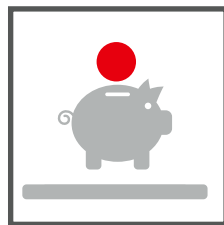
Recyclable and ecological.



Colors remain unchanged over time.

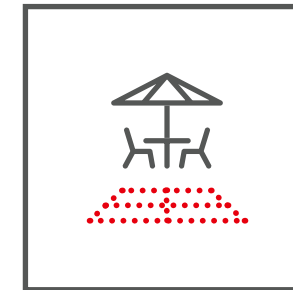


Available in a broad range of colors and styles.

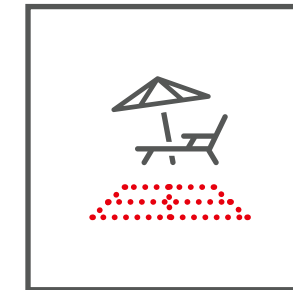


Exceptional life cycle cost = best value.

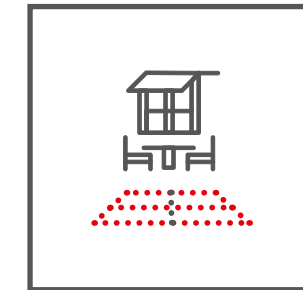
The long-term performance and slip-resistance of Prima Materia by Kronos make it an excellent choice for many applications:



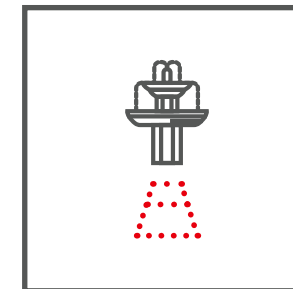
Patios



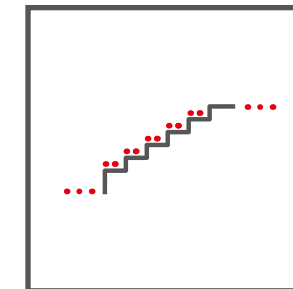
Pool decks



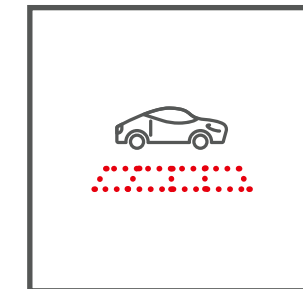
Terraces



Walkways



Stairs and steps

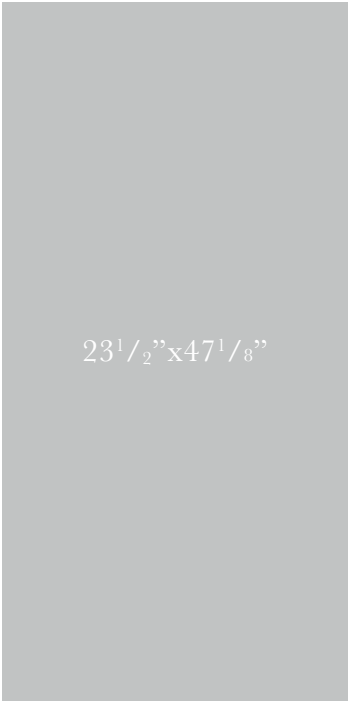


Driveways

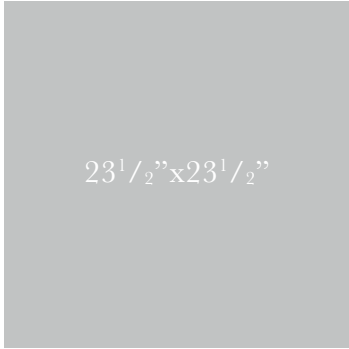
# Colours and sizes

Prima Materia develops the material suggestions of the concrete surfaces for differentiated and creative solutions for outdoor, public and residential areas. 3 neutral colours, three different styles: the grip surfaces are able to personalize a complete, extraordinarily well-matched project.

Prima Materia defines a new style of living in which every element finds the right balance.



23 1/2" x 47 1/8"



23 1/2" x 23 1/2"

**THICKNESS:**  
3/4"



CEMENTO

CENERE

SANDALO

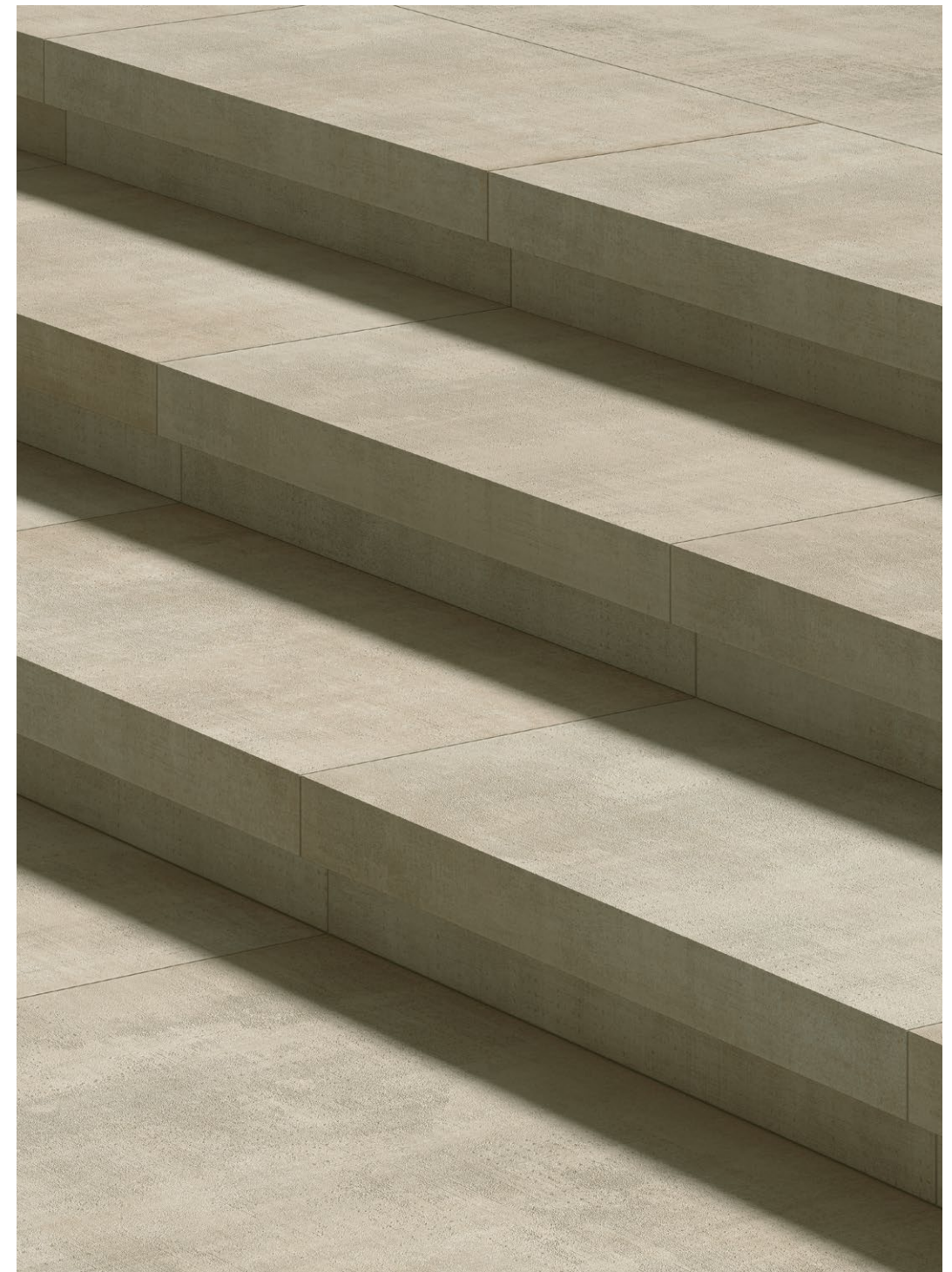




**FLOOR:** PRIMA MATERIA Cemento 24"x48"  
**DESK:** PRIMA MATERIA Sandalo 24"x48"



**SWIMMING POOL:** PRIMA MATERIA Sandalo 24"x48" **FLOOR:** PRIMA MATERIA Cenere 24"x48" - 24"x24"



**SWIMMING POOL:** PRIMA MATERIA Sandalo 24"x48"  
**FLOOR:** PRIMA MATERIA Cenere 24"x48" - 24"x24"



**SWIMMING POOL:** PRIMA MATERIA Sandalo 24"x48" **FLOOR:** PRIMA MATERIA Cenere 24"x48" - 24"x24"



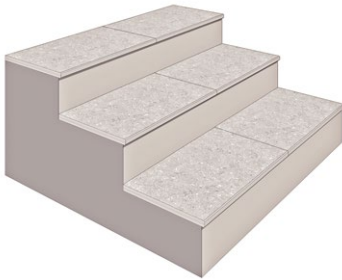




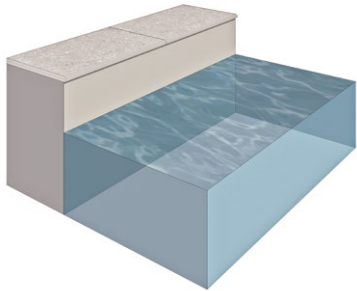
**FLOOR:** PRIMA MATERIA Sandalo 24"x24"

SPECIAL PIECES

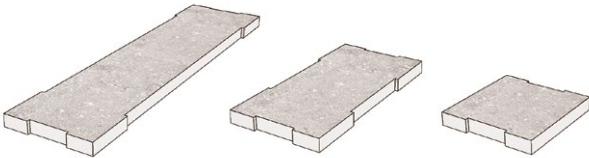
**DOUBLE BEVEL COPING**  
11¾"x23 ⅙"  
Available in all colours.



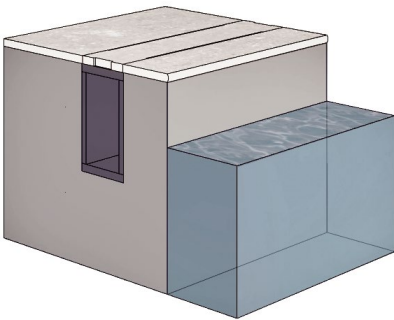
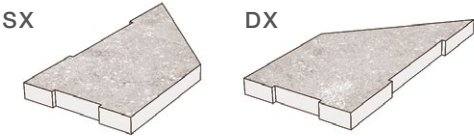
**FULL BULLNOSE COPING**  
11¾"x23 ⅙"  
Available in all colours.



**BLIND GRID**  
6"x24" rectified / 6"x12" rectified / 6"x6" rectified  
Available in all colours.



**BLIND GRID ANGLE**  
6"x6"x12" rectified  
Available in all colours.



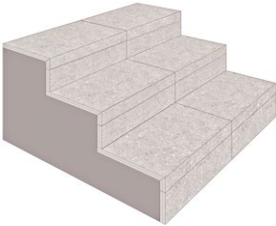
**L SHAPE  
MITERED EDGE**  
12"x24" H2"



**L SHAPE  
WITH 2 SIDES CORNER  
CLOSURE LEFT OR RIGHT**  
12"x24" H2"



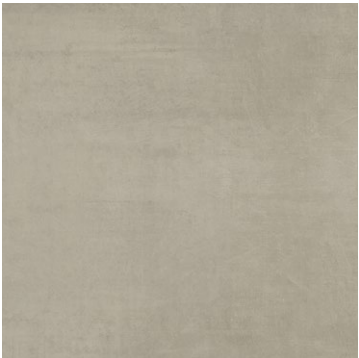
**L SHAPE  
WITH 45° CORNER  
CUT LEFT OR RIGHT**  
12"x24" H2"



For bullnose and double bevel the actual glazed surface of color stops at the start of the radius, it shows only the body color.

**SWIMMING POOL:** PRIMA MATERIA Sandalo 23½"x47⅙"  
**FLOOR:** PRIMA MATERIA Cenere 23½"x47⅙" - 23½"x23½"

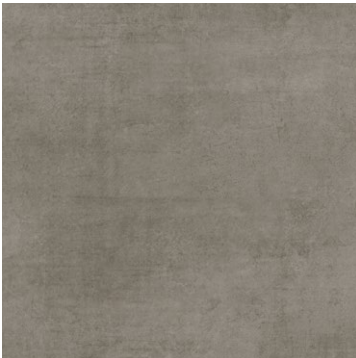
COLOURS



CEMENTO



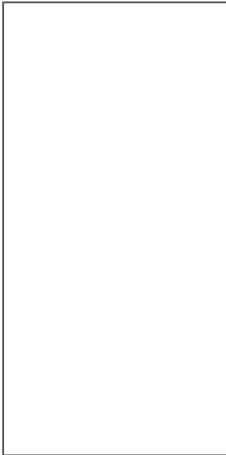
CENERE



SANDALO

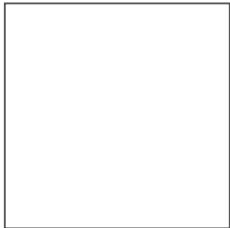


SIZES



3/4”  
23 1/2”x47 1/8”

US8098 PRIMA MATERIA CEMENTO 2.0  
US8097 PRIMA MATERIA CENERE 2.0  
US8099 PRIMA MATERIA SANDALO 2.0



3/4”  
23 1/2”x23 1/2”

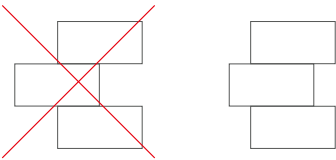
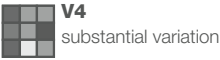
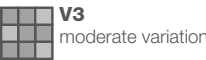
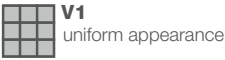
US8062 PRIMA MATERIA CEMENTO 2.0  
US8063 PRIMA MATERIA CENERE 2.0  
US8064 PRIMA MATERIA SANDALO 2.0

PACKAGING

| PRIMA MATERIA   | Thickness    | Unit/Box | SqFt/Box | Boxes/Pallet | SqFt/Pallet | Weight/Box | Weight/M² | Weight/SqFt | Weight/Pallet | Pallet size |
|-----------------|--------------|----------|----------|--------------|-------------|------------|-----------|-------------|---------------|-------------|
| 23 1/2"x47 1/8" | 3/4" - 20 mm | 2        | 15,50    | 16           | 248,00      | 153 lb     | 91,80 lb  | 8,53 lb     | 2,373 lb      | 30"x51"     |
| 23 1/2"x23 1/2" | 3/4" - 20 mm | 2        | 7,75     | 36           | 279,00      | 72,94 lb   | 91,80 lb  | 8,53 lb     | 2,663 lb      | 42"x42"     |

| CHARACTERISTIC                                                                      | ASTM METHOD             | INDUSTRY STANDARD                                                                                                            | EN METHOD | ISO METHOD         | INDUSTRY STANDARD                 |  |
|-------------------------------------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------|-----------------------------------|-------------------------------------------------------------------------------------|
| Thickness                                                                           | ASTM C 499              | -                                                                                                                            |           | ISO 10545-2        | -                                 | ¾”                                                                                  |
| Weight                                                                              | -                       | -                                                                                                                            |           |                    | -                                 | 9 lb/sq. ft                                                                         |
| Water absorption                                                                    | ASTM C 373-88           | ≤ 0,5%                                                                                                                       |           | ISO 10545-3        | E ≤ 0,5%                          | ≤ 0.1%                                                                              |
|  | ASTM C 373              | 0,5%                                                                                                                         |           |                    |                                   | Meeting the water absorption criteria of the American national standard PTCA        |
| Breaking strenght                                                                   | ASTM 1505               | 2000 lbf (10.9 kN)                                                                                                           |           | ISO 10545-4        | Sp > / = 7,5mm<br>S > / = 1300 N  | > 2500 lbf                                                                          |
| Moduls of rupture                                                                   | -                       | -                                                                                                                            |           | ISO 10545-4        |                                   | > 7000 psi                                                                          |
| Static load capacity<br>(24"x24" pavers)                                            | -                       | -                                                                                                                            | EN 12825  |                    | center<br>side center<br>diagonal | > 1700 lbf<br>> 1200 lbf<br>> 1500 lbf                                              |
| Dynamic load capacity -<br>hand object impact test                                  | -                       | -                                                                                                                            | EN 12825  |                    | -                                 | Test not passed                                                                     |
| Dynamic load capacity -<br>soft object impact test                                  | -                       | -                                                                                                                            | EN 12825  |                    | -                                 | Test Passed                                                                         |
| Bending strenght                                                                    | -                       | -                                                                                                                            | EN 1339   |                    | Kn 14,38                          | Class 14                                                                            |
| Impact resistance                                                                   | -                       | -                                                                                                                            |           | ISO 10545-5        | -                                 | > 0.55                                                                              |
| Resistance to abrasion                                                              | ASTM C 1243-93          | Surface wear-resistance properties of glazed vitreous and porcelain tiles                                                    |           | ISO 10545-6        | < 175 mm²                         | conforms                                                                            |
| Frost resistant                                                                     | ASTM C1026              | A tile sample is subjected to repeated porcesses of freezing and thawing. Sample must show no visible defects.               |           | ISO 10545-12       | requested                         | resistant                                                                           |
| Resistance to thermal shock                                                         | ASTM C 484              | requested                                                                                                                    |           | ISO 10545-9        | requested                         | resistant                                                                           |
| Resistance to chemicals                                                             | ASTM C 650              | A tile sample is placed in continuous contact with a variety of chemicals for 24 hours. No sample show visible defects.      |           | ISO 10545-13       | UB min                            | UA                                                                                  |
| Resistance to acids and alkalis                                                     | -                       | -                                                                                                                            |           | ISO 10545-13       | -                                 | ULA/UHA                                                                             |
| Resistance to staining                                                              | ASTM C 1378             | Surfaces are exposed to staining agents for 24 hours followed by four cleaning procedures. Results are recirdedpost cleaning |           | ISO 10545-14       | -                                 | Class 5                                                                             |
| Fire resistance                                                                     | -                       | -                                                                                                                            | EN 3501-1 |                    | -                                 | A1-A1 FL                                                                            |
| Barefoot ramp test                                                                  | ANSI A 326.3            | -                                                                                                                            |           | DIN 51097          | -                                 | A+B+C                                                                               |
| Shod rampt test                                                                     | -                       | -                                                                                                                            |           | DIN 51130          | -                                 | R11                                                                                 |
| Dynamic coefficient of friction                                                     | ANSI A137 / ASTM A326.3 | -                                                                                                                            |           | BOT 3000           | -                                 | > 0.60 wet<br>> 0.60 dry                                                            |
| Slip resistance                                                                     | -                       | -                                                                                                                            |           | DM 236/89 B.C.R.A. | -                                 | > 0.40                                                                              |

SHADE VARIATION



LAYING INSTRUCTION :  
Any large or rectangle porcelain pavers should never be set in a running bond pattern, rather no more than 1/3 overlap.



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