



FRONTIER20

 **LANDMARK**
CERAMICS

A new landmark in the ceramic industry

Landmark Ceramics is an American company, based in Tennessee that has set out to research, manufacture and sell top quality porcelain ceramics in North America, taking advantage of the proven experience of the Gruppo Concorde, an international leader in the sector. Technological innovation, market presence, attention to detail, the welfare of people and the environment, efficient service and a thorough product range make Landmark a new benchmark in the North American market for those who are looking for a reliable partner for any building and architecture project using US made top quality porcelain pavers.

FRONTIER20

Frontier20 is a line of porcelain pavers that is perfectly suited for the outdoors. The market's demand for a stain proof, slip resistant, chemical resistant, no maintenance product lead to the development of a revolutionary aesthetically superior product that is versatile enough for exteriors as well as interiors. combining the highest level of quality control and technology with state of the art equipment, age old practices have been revitalized to offer a superior Industry leading product. Frontier20 offers a never before seen dimension to your outdoor living area! Please continue to be amazed at extremely realistic natural stone and wood look products.



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LEARN MORE ABOUT



PERFORMANCE, FUNCTIONALITY AND AESTHETICS: ALL IN 20 MM.

Frontier20 porcelain pavers are inheritantly slip resistant and impervious to chemicals, salt, fading, or scratching.

Free your self from having to commit to yearly sealing practices.

Your Frontier20 will never fade or need sealing!

Simply pressure wash your way to a newly installed look any time you want. Moss and mold also won't be an issue, they too can easily be cleaned off without fear of streaking. The ultra realistic surface of Frontier20 is physically bound and can not fade or be removed.

Frontier20 is Freedom!

PROJECT

FLOOR DESIGN

Frontier20 Modern Grey - 24"x24"



EASY TO INSTALL



EASY TO KEEP CLEAN

Mild environmentally friendly detergents can be used when cleaning your porcelain pavers. Pressure washers up to 1500 PSI may be used without fear of etching or striping.



ANTISLIP

The structure and texture of the porcelain paver reduce the risk of slipperiness.



RESISTANT TO MOSS AND MOLDING

Landmark Frontier20 is so dense that mold and mildew are not able to establish themselves in a permanent way making removal very easy and simple.



EASY TO REPLACE AND REMOVE

When not mortared down or installed with adhesive Landmark's Frontier20 can be easily removed and repositioned in a new area.



DRIVE OVER *

When properly installed over concrete, Landmark Frontier20 porcelain pavers are suitable for light residential vehicular traffic.
(*) When installed over reinforced concrete (4" minimum) using a thinset mortar suitable for porcelain paver.



STAIN RESISTANT

Landmark's Frontier20 porcelain pavers are virtually non porous. Due to the baked on glazing process nothing can be absorbed including stains.



RESISTANT TO THERMAL SHOCK

Landmark's porcelain pavers are baked at temperatures up to 2300 degrees F which in turn causes a very strong molecular bond making for a very dense material. Due to its density it becomes very inert allowing for extreme and sudden temperature changes in the range of - 60 F +140 F.



SCRATCH RESISTANT

Landmark Frontier20 porcelain pavers are extremely hard with an equally hard surface making them virtually scratch proof.



FADE RESISTANT

Landmark's Frontier20 baked on graphics are created using ingredients that are completely unaffected by the sun ensuring enjoyment of your porcelain paving investment for many years to come.



FROST RESISTANT

Landmark Frontier20 porcelain pavers are so dense that frost and or freezing temperatures do not affect it.



RESISTANT TO SALTS

Landmark Frontier20 porcelain pavers are completely unaffected by use of salts.



RESISTANT TO ACID AND CHEMICALS

Landmark Frontier20 is made with inert ingredients that do not react or accept acids and or chemicals allowing you to make environmentally friendly cleaning decisions!



ECO-FRIENDLY

Landmark Frontier20 porcelain pavers are produced in our environmentally friendly complex following the strictest state and federal regulations. Because of Landmark's environment friendly commitment, we can incorporate up to 20% recycled content in our USA made porcelain pavers.



NO SEALING NEEDED

No sealers are needed because Landmark Frontier20 is so dense virtually nothing can stick to it!



SAVING OVER TIME

Low maintenance cost.

FOR RESIDENTIAL.

- Walkways
- Driveways
- Courtyards
- Paths on grass or gravel
- Garages
- Patios and porches
- Terraces and balconies
- Access ramps
- Verandas
- Outdoor pools

PROJECT

FLOOR DESIGN
Frontier20 Travertine Cross Cut Cream - 24"x24"
COUNTERS
Frontier20 Travertine Cross Cut Cream - 24"x24"

FOR PUBLIC SPACES.

- Public outdoor areas
- Swimming pools
- Outdoor restaurants
- Outdoor bars
- Wellness centres
- Urban design
- Safety passages
- Outdoor pavements and squares

PROJECT

FLOOR DESIGN
Frontier20 Travertine Cross Cut Silver - 24"x24"
WALL DESIGN
Frontier20 Travertine Cross Cut Silver - 24"x24"
COUNTER
Frontier20 Travertine Cross Cut Silver - 24"x24"

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CONTINUITY IN & OUT.

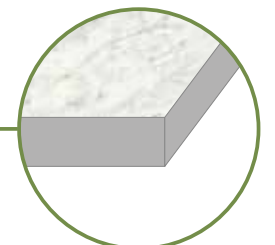
Combining the Frontier20 line of products with the standard thickness product lines offers **high-level design flexibility and customization**, allowing designers and architects to easily transition inside design into outdoor beauty, functionality and performance.

**VERSATILE
MATCHING
SOLUTIONS.**

Landmark Ceramics provides matching solutions for indoors and outdoors, combining products from the Frontier20 catalog with items from traditional thickness collections.

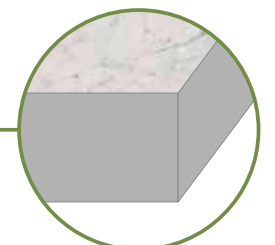
Continuity of style allows architects and designers to easily transition from inside beauty to outdoor functionality.

**INDOOR
PORCELAIN TILE**



± 9 mm

**OUTDOOR
PORCELAIN PAVER**



± 20 mm

COMPLETE LAYING VERSATILITY.

The Frontier20 product line is so simply perfect, elegant and functional, that the challenge of installation is not “How can I install Frontier20?” but rather, “**Where else do I want to install Frontier20?**”. Frontier20 may be installed using the traditional mortared bed, the more modern over sand and limestone, to the eco friendly permeable method, or even the budget conscious elevated deck or pedestal application.

01 DRY LAYING.

A way of laying pavers that allows you to **support plates** directly onto grass, gravel or sand.

01.1 ON GRASS



01.2 ON GRAVEL



01.3 ON SAND



02

INSTALLATION OVER REINFORCED CONCRETE*.

A way of laying pavers that allows you to create **perfectly stable surfaces** of incredible resistance.

* When installed over reinforced concrete (4" minimum) using a thinset/thickset mortar suitable for porcelain paver.



03

INSTALLATION OVER DECKING.

Traditional deck made with wood and porcelain pavers.



04

RAISED FLOORS.

Slabs matched with a support structure for raised high-performing floors that also leaves sufficient room for **under-floor inspection**.



01 DRY LAYING.

ADVANTAGES.

- RAPID
- MODIFIABLE
- REUSABLE
- EASY TO CARRY THROUGH
- REDUCES ADHESIVES COSTS
- QUICK TO INSTALL
- READY TO USE

The surface in 20mm thickness can be laid onto the substrate **without adhesives**, lending itself to applications onto **grass, gravel and sand**. Sought-after ambiance in the home come to life quickly with **incredible ease and simplicity**.

LOCATIONS.

- PRIVATE GARDENS
- PATIOS
- WALKWAYS
- PUBLIC PARKS AND GARDENS
- OUTDOOR COMMERCIAL AREAS
- BEACH RESORTS



DRY LAYING ON GRASS



PROJECT

FLOOR DESIGN

Frontier20 Travertine Cross Cut Noce - 24"x24"
Frontier20 Travertine Cross Cut Noce Coping - 24"x13"
Frontier20 Travertine Cross Cut Noce Coping Corner - 24"x13"

WALL DESIGN

Spirit Old Maple - 8"x40"

01.1 DRY LAYING
ON GRASS.

DRY LAY OVER GRASS
(PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION

Follow the drawing below.

- ➔ Cut grass in desired area as short as possible. remove any debris.
- ➔ Using a landscape rake scratch up top 1 inch of soil and level.
- ➔ Insure sub grade is graded to a 1" in 10' slope and that it is pitched away from any building.



- A** FRONTIER20 PORCELAIN 3/4" NOMINAL (20MM) PAVERS
- B** BARE SOIL IS BEST. SCRATCH AND LAYEL WITH A RAKE

DRY LAY OVER GRASS ON COMPACTED ROAD BASE INSTALLATION
(PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION

Follow the drawing below.

- ➔ Compacted base road is composed of ¾ compated gravel.
- ➔ Sand bed course poured onto compacted gravel and screed to have smooth surface.



- A** FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS.
- B** 1" SAND BEDDING COURSE SCREED WITH SMOOTH SURFACE.
- C** COMPACTED ROAD.

The stratigraphic images are just an example of the type of application and technical features of Frontier20. Landmark Ceramics recommends to refer to the specific norms valid in the various countries to carry out a state-of-the-art installation. Download Landmark Frontier20 Installation guide from <https://hardscape.landmarkceramics.com> for practical installation information.



PROJECT

FLOOR DESIGN
Frontier20 Travertine Cross Cut White - 24"x24"

01.2 DRY LAYING
ON GRAVEL.

PERMEABLE APPLICATION
(PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION
Follow the drawing below.

- The required edge restraint system for this installation has a vertical height of 2" (5 cm) as shown in the drawing.
- Insure that pavement is constructed with a 1" in 10' and that it is pitched away from any building.
- Insure the 3/16" (4 mm) spacers are installed between all pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B COARSENESS OF GRAVEL 2" - 8 S' AND 9 S' (1/2" + LESS)
- C COARSENESS OF GRAVEL 4" - #57 (3/4")
- D COARSENESS OF GRAVEL 6" - 3 S'- 4 S' IF DESIRED
- E FILTER FABRIC

INSTALLATION WITH
HIGH DENSITY PANELS
(PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION
Follow the drawing below.

- The edge restraint system is 0.75" - 1" height profile.
- Attach the edge restraint into the panel.
- Lay fabric directly on top of the substrate to contain sand.
- Install panel onto sand bed course 1".
- Insure the 3/16" (4 mm) spacers are installed between all pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B SPACERS
- C HIGH DENSITY PANELS
- D SAND 1/2" - 1"
- E FILTER FABRIC
- F 1' INCH PERIPHERAL ANCHOR
- G SUBSTRATE

WARNING:
Please remember that high density panel can reduce the heat dispersion accumulated by pavers exposed to direct sun or any other source of heat. For this reason we recommend to contact landmark ceramics at <https://hardscape.landmarkceramics.com/contact.php> for any questions you might have.

INSTALLATION WITH GRATE FULFILLED
WITH SAND OVER COARSE
(PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION
Follow the drawing below.

- Paver joints have to be swept with polymeric tile sand
- Please ensure that grate has to be filled with drainable sand
- Depth of coarse aggregate has to be approximately 50% of traditional excavation vertical extent.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B SPACERS
- C FILTER FABRIC
- D GRATE SYSTEM FILLED WITH DRAINABLE SAND
- E COARSE AGGREGATE (67 OR 57)
- F 1' INCH PERIPHERAL ANCHOR
- G ADDITIONAL FILTER FABRIC IF NEEDED
- H SUBSTRATE

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01.3 DRY LAYING ON SAND.

TYPICAL FLEXIBLE BASE INSTALLATION (PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION Follow the drawing below.

- Base material is to be over dug 6" to 8" beyond the edge of the pavement.
- The required edge restraint system is a low profile edge restraint with a vertical height of 1.5" (4 cm) as shown in the drawing.
- Insure that pavement is constructed with a 1" in 10' slope that it is pitched away from any building.
- Insure the plastic 3/16" (4 mm) spacers are installed at all corners of the installed pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B 3/4" UNCOMPACTED BEDDING SAND
- C 4-6" CRUSHER RUN/ROAD BASE
- D FILTER FABRIC

Insure the plastic 3/16" (4 mm) spacers are installed at all corners of the installed pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.

OVER SAND BASE INSTALLATION (PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION Follow the drawing below.

- Filter fabric is recommended as it allows water to pass but not the particles of sand.
- 2-4" of a compactable sand is recommended. You can go with more however it will not offer any distinct advantage. Going with less than 2" may offer a less desirable effect as it will tend to hold more water and become "mushy" when super saturated.
- The use of an edge restraint is ideal but not necessary. It becomes more necessary if your desired paving area is above the surrounding native soil, as it will help aid in the minimization of sand migration or erosion.
- Insure the plastic 3/16" (4 mm) spacers are installed at all corners of the installed pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B APPROX. 4" OF BEDDING SAND
- C FILTER FABRIC

SAND SET OVER CONCRETE (PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION Follow the drawing below.

- The edge restraint system is 1 1/2" - 2" height profile.
- Ensure edge restraint into the concrete base made.
- Lay fabric directly on top of the concrete to contain sand and fold it up the front of the edging.
- Insure that pavement is constructed with a 1" in 10' and that it is pitched away from any building.
- Insure the 3/16" (4 mm) spacers are installed between all pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B SAND BEDDING COURSE 1"
- C FILTER FABRIC
- D EXISTING OR NEW CONCRETE 4" MINIMUM
- E 1/2" - 1" INCH DRAINAGE HOLES DRILLED 24 INCH ON CENTER
- F PERIPHERAL RESTRAINT SYSTEM

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02 INSTALLATION OVER REINFORCED CONCRETE*.

The Frontier20 may also be installed with traditional methods using thinset/thickset mortar appropriate for use with porcelain paver. In a short 24 hours your floor will be ready for foot traffic. This method offers the most stable and most durable floor covering that is able to withstand foot traffic up to light vehicular traffic.

* It is recommended installation over 4" minimum thick reinforced concrete, using a thinset/thickset mortar suitable for porcelain paver.

ADVANTAGES.

- LONG TERM DURABILITY
- READILY ACCESSIBLE SURFACES
- ABLE TO WITHSTAND PEDESTRIAN AND LIGHT VEHICLE TRAFFIC

LOCATIONS.

- | | |
|------------|-----------------|
| → YARDS | → PARKING AREAS |
| → PORCHES | → CYCLE TRACKS |
| → TERRACES | → PAVEMENTS |
| → RAMPS | → SQUARES |
| → GARAGES | |



INSTALLATION OVER REINFORCED CONCRETE

THIN SET MORTAR APPLICATION OVER REINFORCED CONCRETE

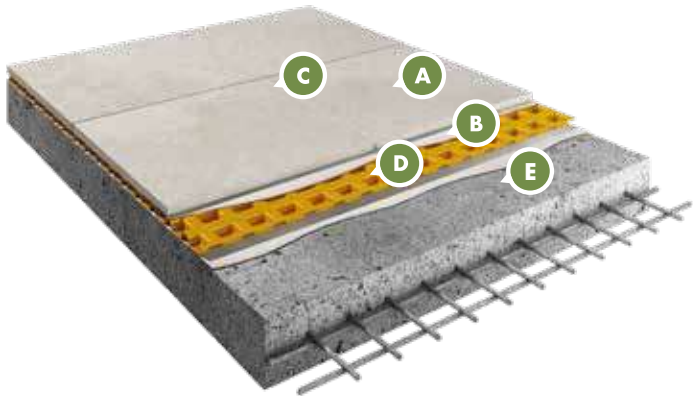
PRACTICAL INSTALLATION

Follow the drawing below.

- Insure that pavement is constructed with approximately 2 degree slope and that it is sloped away from any building.
- Please consult your paver supply distributor for thin set mortar suitable for porcelain paver as well as for inside or external usage.
- For cementitious adhesive and grout installation, refer to the manufacturer's technical instructions and specifically as they relate to outdoor installations.
- For concrete foundation slabs that are not large enough to require contraction/control joints, a minimum $\frac{3}{16}$ " (4 mm) grout joint is acceptable, but for larger concrete foundation slabs that do require contraction/control joints, the control joint width should be a $\frac{3}{8}$ " (1 cm). It is absolutely imperative that all contraction/control joints be located in the joint line of installed porcelain pavers and not beneath a paver.

CAUTION: if a porcelain paver is installed over a control joint, the paver will reflectively crack along the contraction/control joint beneath it.

Utilization of an uncoupling membrane can help minimize the potential issue.



- A FRONTIER20 PORCELAIN $\frac{3}{4}$ " NOMINAL (20 MM) PAVERS
- B THINSET
- C $\frac{3}{16}$ " MINIMUM GROUT JOINT
- D UNCOUPLING MEMBRANE
- E EXISTING OR NEW CONCRETE (REINFORCED). 4" MINIMUM

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03 INSTALLATION OVER DECKING.

Landmark Ceramic's Frontier20 combined with a **grate system** allows porcelain paving to be utilized in conjunction with an existing or new construction **wood deck structure**. As long as the wooden deck structure is constructed soundly and according to local codes, the honeycomb plastic grate is installed as the substrate for the porcelain paver. This system is **highly innovative and functional** for the design of contemporary outdoor spaces.



ADVANTAGES.

- ANTISLIP FROST RESISTANT
- RESISTANT TO THERMAL SHOCK
- SAFETY
- EASY TO MAINTAIN
- DURABLE OVER TIME
- HIGH END LOOK
- NEVER HAVING TO STAIN DECK BOARDS AGAIN
- NO SCREW OR NAILS STICKING UP
- NO WOOD SPLINTERS

LOCATIONS.

- PRIVATE GARDENS
- OUTDOOR ELEVATED WALKWAYS
- DECK PATIOS
- DECK GAZEBOS



INSTALLATION OVER DECKING

INSTALLATION OVER DECKING (PEDESTRIAN FOOT TRAFFIC)

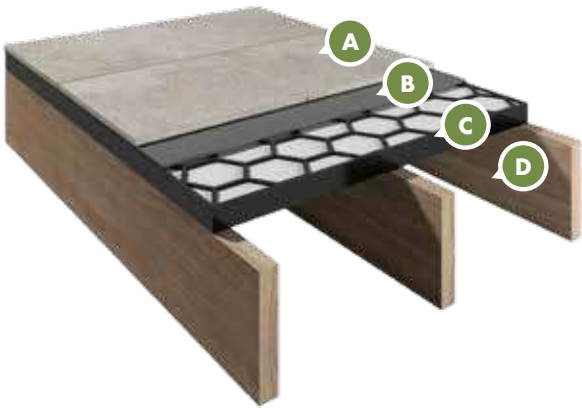
PRACTICAL INSTALLATION

Follow the drawing below.

- Deck joists must be "sound" and in good condition as well as constructed in accordance with local codes.
- Deck joists must be spaced 16" on center.
- Top of joists must be flat to one another.
- Grates will span 2 joists and be fastened using weather proof screws.
- Stagger grates 1/3rd, 1/4th or 1/2 as shown.
- Outdoor fabrics varies in thickness. Multiple layers may be needed to reduce acoustics.
- The use of porcelain paver spacers are recommended. 1/8th inch joints are the minimum recommendation.
- Silicon or a neutral colored adhesive may be applied to spacers to help reduce porcelain paver movement.
- Porcelain paver joints may be filled or left open, depending on desired drainage.
- Insure the 3/16" (4 mm) spacers are installed between all pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.

Insure the plastic 3/16" (4 mm) spacers are installed at all corners of the installed pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.

The stratigraphic images are just an example of the type of application and technical features of Frontier20. Landmark Ceramics recommends to refer to the specific norms valid in the various countries to carry out a state-of-the-art installation. Download Landmark Frontier20 Installation guide from <https://hardscape.landmarkceramics.com> for practical installation information.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20MM) PAVERS
- B OUTDOOR FABRIC OR SOUND INSULATING MATTRESS
- C HONEYCOMB PLASTIC GRATE
- D DECK JOISTS

04 RAISED FLOORS.

ADVANTAGES.

- LEVEL OFF UNEVEN SURFACES
- ALLOWS YOU TO HIDE UNSIGHTLY PIPES AND PLANTS WIRES AND ELECTRICAL CONDUIT
- EASY MAINTENANCE
- ALLOWS FOR WATER DRAINAGE
- RESISTANT TO THERMAL EXPANSION
- PROVIDES THERMAL AND ACOUSTIC INSULATION
- NO NEED FOR ADHESIVES
- REDUCES LABOUR COSTS

LOCATIONS.

- PATIOS
- GAZEBOS
- FACILITY AREAS OF COMMERCIAL VENUES
- ROOF TOPS

In combination with a suitable structure the **Frontier20 porcelain paver** in 20mm thickness lend themselves perfectly to floors with a **suspended installation**. The adjustable stand means being able to create an air space under the floor in which to lay electrical conduit or plumbing. The raised flooring system is easy to manage, allows you to configure the underlying wiring or plumbing systems based on specific needs and also to change its configuration any time a new look is needed.



LOW HEIGHT SUPPORTS (UP TO 3/4" - 20 MM) PEDESTAL INSTALLATION OVER EXISTING SUBSTRATE (PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION

Follow the drawing below.

- Ensure concrete slab is in stable condition and has a 1" in 10' slope to divert water away from structure.
- Ensure spacer tabs are intact in the corners where the porcelain pavers might come to contact.



- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B PEDESTAL
- C EXISTING SLAB OR SUBSTRATE

Insure the plastic 3/16" (4 mm) spacers are installed at all corners of the installed pavers, in order to prevent pavers from touching each other (and potentially chipping) and to allow better water drainage.

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INSTALLATION OVER LOW HEIGHT SUPPORTS (UP TO 3/4" - 20 MM) PEDESTAL ON CONCRETE (PEDESTRIAN FOOT TRAFFIC)

PRACTICAL INSTALLATION

Follow the drawing below.

- Make sure the concrete slab is properly built and smooth and has 1 1/2 - 2 degree pitch and that it is pitched away from any building.
- Plastic 3/4" pedestal support must be placed and installed all corners of the pavers.



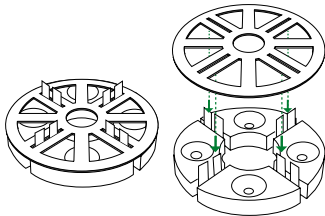
- A FRONTIER20 PORCELAIN 3/4" NOMINAL (20 MM) PAVERS
- B PEDESTAL
- C CONCRETE BASE
- D SUBSTRATE

RAISED FLOORS INSTALLATION SYSTEM.

LOW HEIGHT SUPPORTS.

System made up of disks of variable thickness. Utilize for low height installation (up to 3/4").

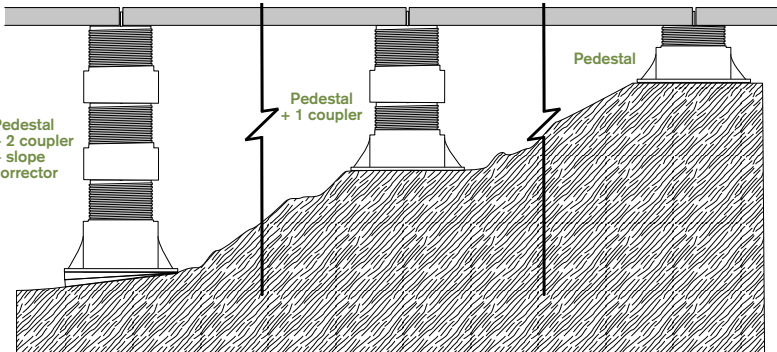
	AVAILABLE HEIGHT			
	1/8"	1/4"	1/2"	3/4"
Shim	1/8"			



ADJUSTABLE HEIGHT SUPPORTS.

System made up of adjustable height pedestal (from 1 1/4" to 16").

	AVAILABLE HEIGHT			
	1 1/4" - 2"	2" - 3"	3" - 4 3/4"	4 3/4" - 7 3/4"
Coupler	add up 4" each			
	0" - 1" per foot slope			

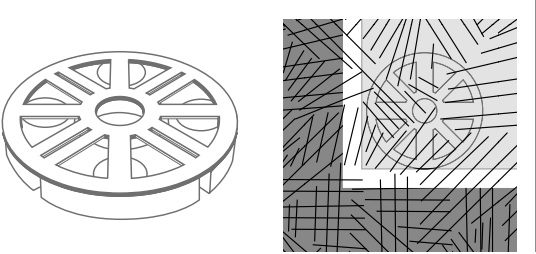


RAISED FLOORS INSTALLATION SYSTEM.

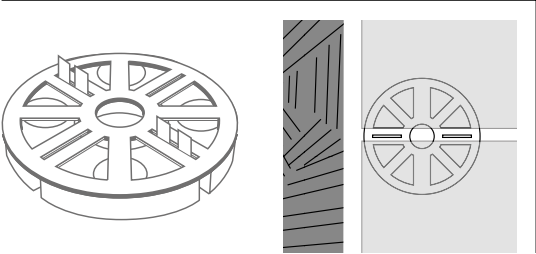
20THICKNESS
PORCELAIN PAVERS

It is recommended to carry out raised installation onto a solid, resistant substrate with the correct inclination to guarantee water drainage. Support come equipped with four spacers that allow for the creation of grout lines between pavers. For a correct installation against walls or corners, it is necessary to keep the supports distant from the wall and remove 2 or 4 spacers as showed in the picture. **Landmark Ceramics** recommends to strictly follow the instructions for the raised installation of Frontier20.

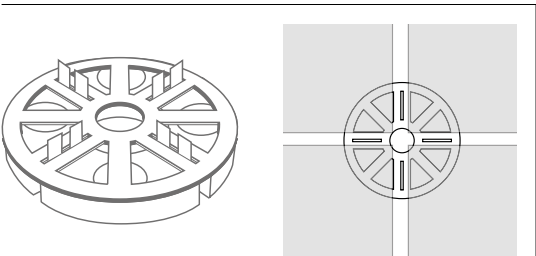
Wall corner



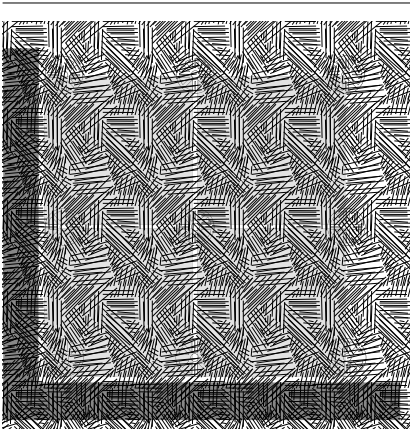
Wall border



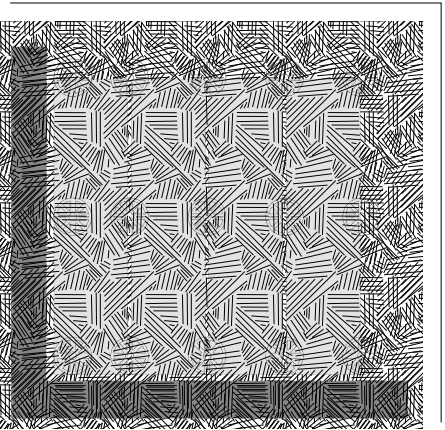
Floor center



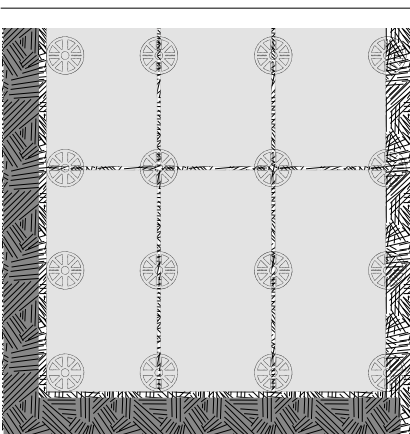
24"x24" - 12"x24" - 12"x12"



12"x48"



18"x36"



RAISED FLOORS INSTALLATION SYSTEM.

WARNINGS.

If the application of the 20 mm slabs requires the ceramic product used in structural installations, the project engineer and/or customer must carefully assess the project requirements with regard to the technical specifications of the slabs. to prevent the risk of damage or injury, the manufacturer recommends: with regard to a raised floor installation a ceramic slab may fracture on impact if a heavy object falls on it from any significant height. therefore the manufacturer recommends to check the specific intended use before starting the installation and to follow table for raised installation provided below. in certain conditions, reinforcing must be applied on the back of the slabs (double fiberglass mesh) supplied and applied by the manufacturer; with reference to any dry installation system of flooring above the ground level, the manufacturer recommends to comply with local regulations and conditions of use with regard to wind-load, loadbearing, seismic events, etc. Failure to comply with these recommendations may lead to improper use of the product and could cause serious damage or injury. For further information and recommendations concerning the installation systems please refer to <https://hardscape.landmarkceramics.com> website.

SUPPORTS REQUIREMENTS			
	SIZE	UP TO ¾" (20 MM)	ABOVE ¾" (20 MM)
	12"x12" (300x300 mm)	4 supports 0,32 pcs/sq ft	Please contact Landmark Ceramics
	12"x24" (600x300 mm)	4 supports 0,32 pcs/sq ft	Please contact Landmark Ceramics
	24"x24" (600x600 mm)	4 supports 0,32 pcs/sq ft	Please contact Landmark Ceramics
	24"x36" (600x900 mm)	6 supports 0,32 pcs/sq ft	Please contact Landmark Ceramics
	18"x36" (450x900 mm)	6 supports 0,56 pcs/sq ft	Please contact Landmark Ceramics
	12"x48" (300x1200 mm)	6 supports 0,65 pcs/sq ft	Please contact Landmark Ceramics
	24"x48" (600x1200 mm)	6 supports 0,65 pcs/sq ft	Please contact Landmark Ceramics

NOTE.

For any detail and technical specification concerning the double fiberglass mesh, please contact Landmark Ceramics. Landmark is responsible only if it supplies the whole system (paver + double fiber mesh). Landmark cannot be held responsible for reinforcing systems that has not supplied. **In case of breakage, paver must be replaced immediately.**

RECOMMENDATIONS FOR THE INSTALLATION, ORDINARY CLEANING AND MAINTENANCE OF FRONTIER20.

Landmark Ceramics recommends carrying out the procedures for the ordinary cleaning of Frontier20 floor surfaces using water and commercially available neutral detergents: the inclination of the surface and the space between adjacent slabs for dry-system installation favour the natural flow of water. However, it is important to take into consideration that any type of floor surface is subject to the surface tension effect of liquids: it is the same property of water that gives the tendency to transform into spherical droplets and which cause the curved top surface of a glass full of water. The surface tension can obstacle the complete drainage of water and cause a temporary stagnation of liquid on the slab edges. In order to avoid this problem, Landmark Ceramics recommends ensuring adequate inclination of the surface during installation so as to encourage the flow of water between adjacent slabs. Please remember in any case that, in view of the distinctive advantages of porcelain stoneware, Frontier20 absorbs practically no water, which makes it highly frost-proof. This may lead to localised water pooling, mainly on the edges of the pavers, independently of the manner and quality of the laying. Laying is also recommended with a minimum gap of 4 mm (5/32"). Should liquid deposit on the surface, it is recommended to push it towards grout lines using a brush or remove it with a wet and dry vacuum cleaner.



Backing with double fiberglass mesh.



TRIM TILES TO LANDSCAPE THE OUTDOORS.

Frontier20 includes a complete range of **special trim pieces** to seamlessly complete and accentuate the landscaping of outdoor spaces. The trim tiles represent the ideal solution for the planning of outdoor spaces, **commercially or residentially**. The special trims feature coordinated aesthetics to match those of the **Landmark porcelain paver**, for projects that demand **total visual continuity**.

DESTINATION OF USE.

- STAIRS
- POOLS
- WALL COVERS

PROJECT

FLOOR DESIGN

Frontier20 Silver Quartz - 24"x24"
Frontier20 Silver Quartz Linear Cover Drain Set - 24"x24"
Frontier20 Silver Quartz Coping - 24"x13"
Frontier20 Silver Quartz Coping Corner - 24"x13"
Frontier20 Silver Quartz Stair Tread - 24"x13"
Frontier20 Silver Quartz Stair Tread Grip - 24"x13"
Frontier20 Silver Quartz Riser - 24"x8"
Frontier20 Silver Quartz Cover - 24"x12"
Frontier20 Silver Quartz End Cover - 24"x12"

STAIR TREAD
P. 37

GRIP STAIR TREAD
P. 37

RISER
P. 37

END COVER
P. 41

COVER
P. 41

COPING CORNER
P. 39

COPING
P. 39

LINEAR COVER DRAIN SET
P. 39

COPING & STAIR TREAD MONOLITHIC. A UNIQUE PIECE, A THOUSAND SOLUTIONS.

__Coping & Stair Tread Monolithic* is processed in order to cater to multiple needs in outdoor design.
Two different border shapes, bullnose (rounded) border and rectified border, in one single piece: freedom for projects with the excellent technical performance of porcelain stoneware.

BULLNOSE
BORDER



RECTIFIED
BORDER



STAIR TREAD MONOLITHIC
(RECTIFIED BORDER)



STAIR TREAD MONOLITHIC
(BULLNOSE BORDER)



GRIP STAIR TREAD MONOLITHIC
(RECTIFIED BORDER)



GRIP STAIR TREAD MONOLITHIC
(BULLNOSE BORDER)

DESTINATION OF USE.

- STAIRS
- POOLS

__A trim piece offering outstanding versatility, both in terms of look and efficiency. Thanks to its two different border shapes, Coping & Stair Tread Monolithic is suitable both for **swimming pool copings** and for **stairs**, in two different versions: with or without grip strips.



COPING MONOLITHIC
(ONLY BULLNOSE BORDER)

* Coping & Stair Tread Monolithic is available in the following colors:
Barge Gold, Multicolor Gold, Vintage Slab.

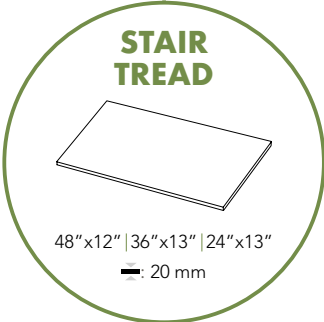
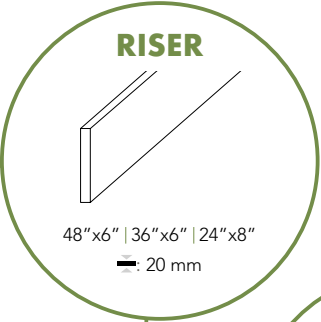
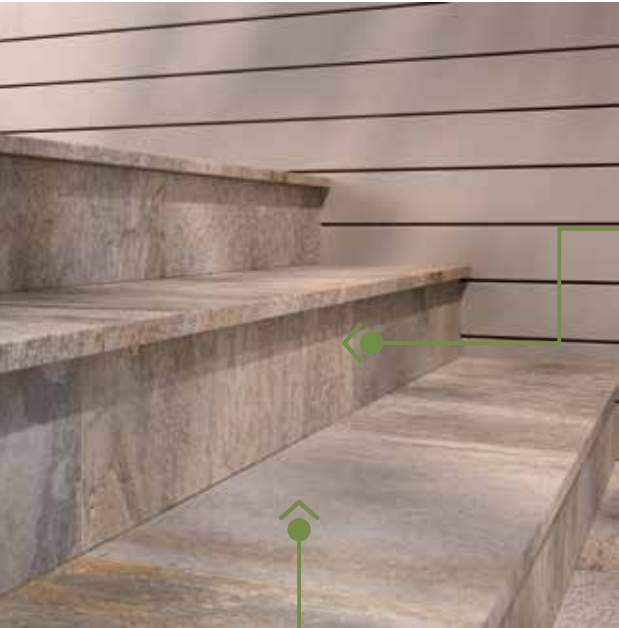
STAIRS WITH AN IN-DEMAND AESTHETIC THAT IS ALSO HIGH PERFORMING.

SYSTEM.

- STAIR TREAD
- GRIP STAIR TREAD
- RISER

ADVANTAGES.

- RESISTANCE TO SALTS
- RESISTANCE TO CHEMICALS
- TECHNICAL PERFORMANCE
- ANTI-SLIP
- VISUAL CONTINUITY TO THE OUTDOOR FLOOR



COMFORT AND STYLE FOR SWIMMING POOL AREAS.

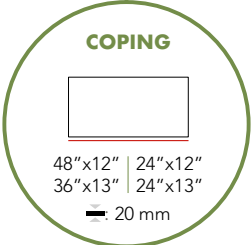
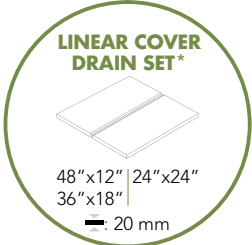
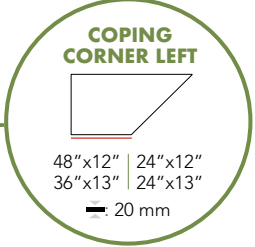
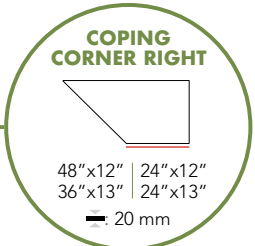
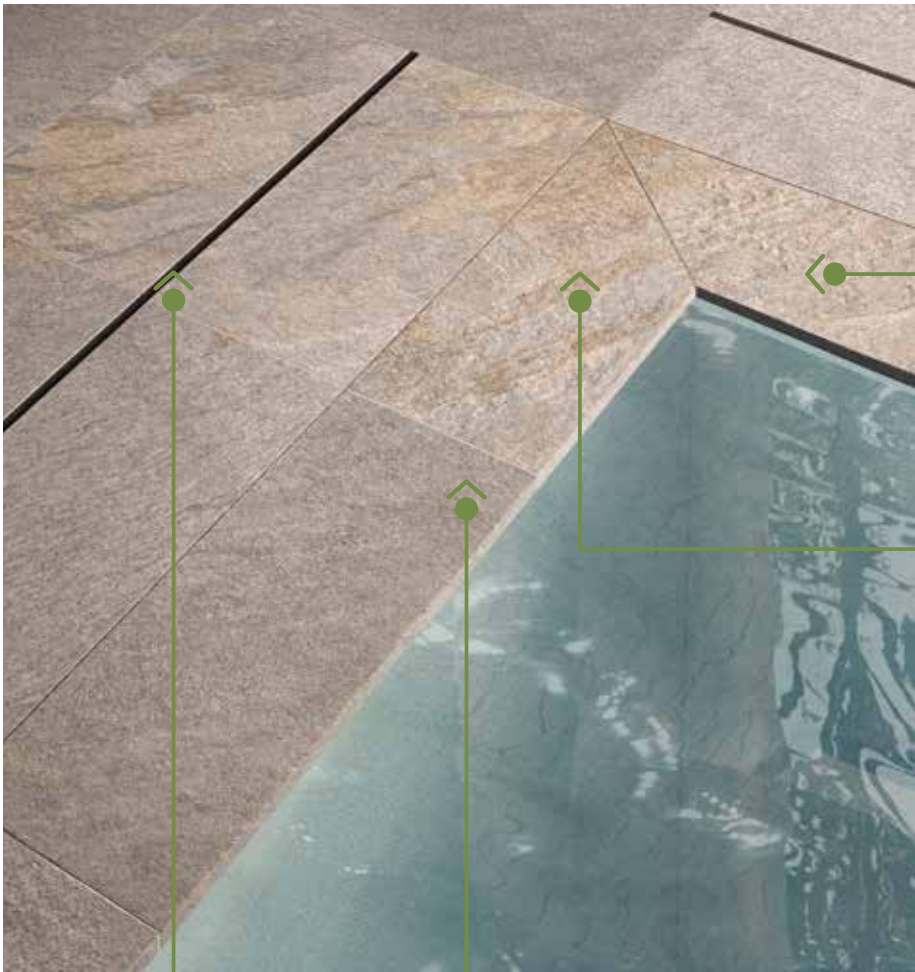
SYSTEM.

- LINEAR COVER DRAIN SET
- COPING
- COPING CORNER

ADVANTAGES.

- RESISTANCE TO SALTS
- RESISTANCE TO CHEMICALS
- ANTI-SLIPPERINESS
- DURABILITY
- EASY TO CLEAN
- VISUAL CONTINUITY TO THE OUTDOOR FLOOR

* The Linear Cover Drain Set is made-up of two pieces, each having a further beveled and polished edge. The two pieces are studied to be laid with the beveled and polished edges facing each other in order to create an open joint. See pages 43, 44, 45 for more details.



WALL COVERS: PROTECTION FROM WATER AND VISUAL CONTINUITY.

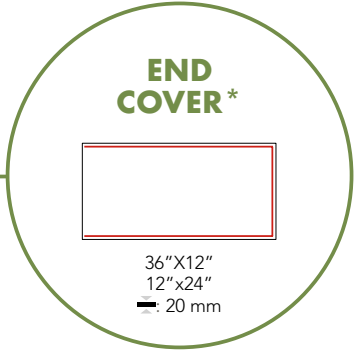
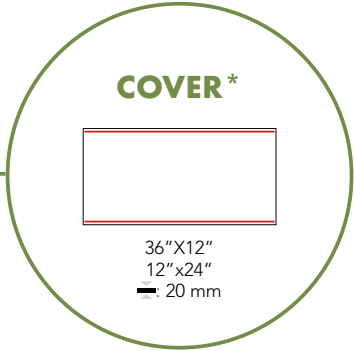
SYSTEM.

- COVER
- END-COVER

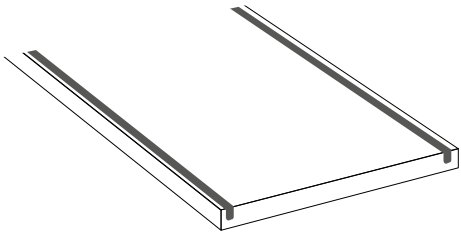
ADVANTAGES.

- ANTI-DETERIORATION
- EASY TO CLEAN
- PROTECTS THE WALL FROM WATER INFILTRATION

* Both Cover and End-Cover have dripstone and undecorated borders.



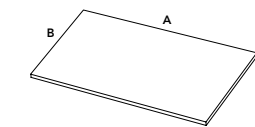
DRIPTONE



STAIRS

STAIR TREAD
MONOLITHIC**

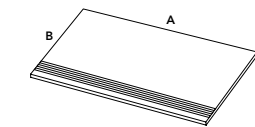
TRIM DIMENSIONS



A: 24"
B: 13"

GRIP STAIR TREAD
MONOLITHIC**

TRIM DIMENSIONS

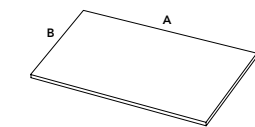


A: 24"
B: 13"



STAIR TREAD*

TRIM DIMENSIONS

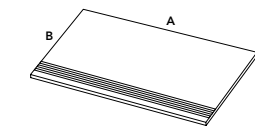


A: 24"
B: 13"

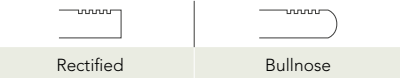


GRIP STAIR TREAD*

TRIM DIMENSIONS

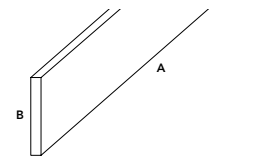


A: 24"
B: 13"



RISER*

TRIM DIMENSIONS



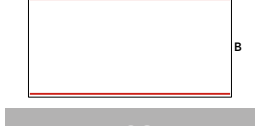
A: 24"
B: 8"



WALL COVERS

COVER*

TRIM DIMENSIONS



A: 24"
B: 12"

END COVER*

Undecorated border and dripstone

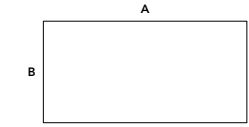


* Available in standard version (with undecorated borders).
** Monolithic trim pieces (with decorated borders), available in the following colors:
Barge Gold, Multicolor Gold, Vintage Slab.

POOLS

COPING
MONOLITHIC**

TRIM DIMENSIONS



A: 24"
B: 13"

Only bullnose border

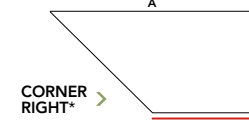
COPING CORNER
MONOLITHIC**

TRIM DIMENSIONS



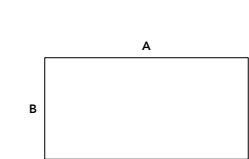
A: 24"
B: 13"

Only bullnose border



COPING*

TRIM DIMENSIONS



A: 24"
B: 13"

A: 24"
B: 12"



COPING CORNER*

TRIM DIMENSIONS



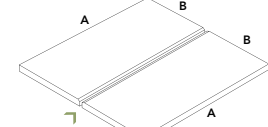
A: 24"
B: 13"

A: 24"
B: 12"



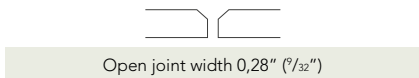
LINEAR COVER
DRAIN SET*

TRIM DIMENSIONS



A: 24"
B: 11,63"

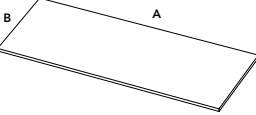
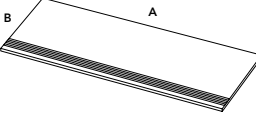
OPEN JOINT
WIDTH 0,28" (9/32")



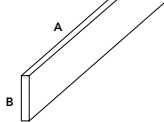
* Available in standard version (with undecorated borders).
** Monolithic trim pieces (with decorated borders), available in the following colors:
Barge Gold, Multicolor Gold, Vintage Slab.

TRIM TILES RANGE 18"x36"

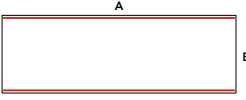
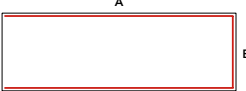
STAIRS

STAIR TREAD*	TRIM DIMENSIONS	GRIP STAIR TREAD*	TRIM DIMENSIONS
	A: 36" B: 13"  Rectified  Bullnose		A: 36" B: 13"  Rectified  Bullnose

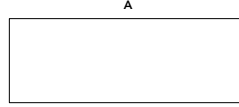
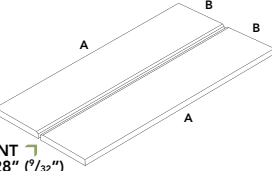
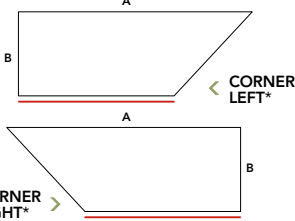
STAIRS

RISER*	TRIM DIMENSIONS
	A: 36" B: 6"  Rectified

WALL COVERS

COVER*	TRIM DIMENSIONS
	A: 36" B: 12"  Undecorated border and dripstone
END COVER*	

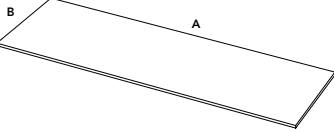
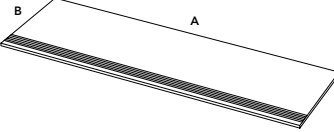
POOLS

COPING*	TRIM DIMENSIONS	LINEAR COVER DRAIN SET*	TRIM DIMENSIONS
	A: 36" B: 13"  Rectified  Bullnose		A: 36" B: 8,71"  Open joint width 0,28" (1/32")
COPING CORNER*	TRIM DIMENSIONS		
	A: 36" B: 13"  Rectified  Bullnose		

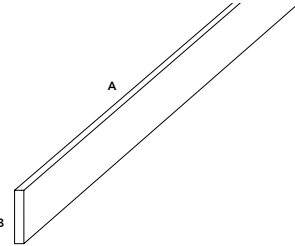
* Available just in standard version (with undecorated borders)

TRIM TILES RANGE 12"x48"

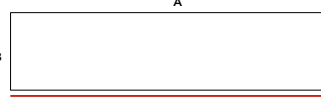
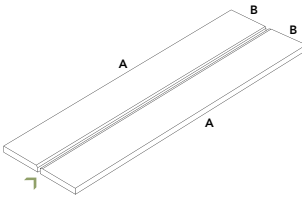
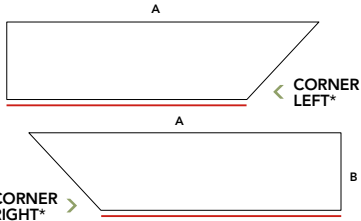
STAIRS

STAIR TREAD*	TRIM DIMENSIONS	GRIP STAIR TREAD*	TRIM DIMENSIONS
	A: 48" B: 12"  Rectified  Bullnose		A: 48" B: 12"  Rectified  Bullnose



RISER*	TRIM DIMENSIONS
	A: 48" B: 6"  Rectified

POOLS

COPING*	TRIM DIMENSIONS	LINEAR COVER DRAIN SET*	TRIM DIMENSIONS
	A: 48" B: 12"  Rectified  Bullnose		A: 48" B: 5,76"  Open joint width 0,28" (1/32")
COPING CORNER*	TRIM DIMENSIONS		
	A: 48" B: 12"  Rectified  Bullnose		

* Available just in standard version (with undecorated borders)

A COMPLETE PROJECT FOR EVERY NEED.

PROJECT

OUTDOOR FLOOR DESIGN

Frontier20 Thermal Bluestone Full Color - 12"x24"

Frontier20 Thermal Bluestone Full Color - 24"x24"

FRONTIER20 EXTERIOR DESIGN WITH A DIFFERENT STYLE.



_Frontier20 is a complete project for any design need, specially developed by Landmark for contemporary outdoor spaces. The extent of the range makes it possible to design outdoor environments with looks that are always new, and to play with surfaces inspired by different materials.

ADVANTAGES.

- **WIDE LOOKS RANGE**
- **PRODUCTS INSPIRED BY MUST POPULAR AMERICAN STONES**
- **A WIDE RANGE OF SIZES**
- **BLUESTONE DESIGN PROJECT**
- **M.P.D. - MULTI PATTERN DESIGN PROJECT**
- **WIDE CHOICE OF TRIM PIECES**

PROJECT
FLOOR DESIGN
Frontier20 Silver Quartz - 24"x24"



PROJECT
FLOOR DESIGN
Frontier20 Essence Brown - 12"x48"
Frontier20 Essence Brown Stair Tread - 12"x48"
Frontier20 Essence Brown Coping Corner - 13"x48"
Frontier20 Essence Brown Riser - 6"x48"

_Frontier20 includes American Stone, a selection of porcelain stoneware surfaces inspired by typical American stones. To this is added the Multi Pattern Design project, which completes the range with new formats for the creation of innovative installation solutions that arise from the combination of multiple sizes.

_The Bluestone Design Project is a prestigious selection of outdoor solutions inspired by the Pennsylvania native bluestone. A highly versatile, premium collection that has its roots in a foundational element of American design and architecture. Redefining traditions and providing endless possibilities for Total Look outdoor projects.

PROJECT
OUTDOOR FLOOR DESIGN
Frontier20 Simply Grey - 18"x36"
Frontier20 Blue Select Bluestone Cobblestone Cube - 24"x24"
INDOOR FLOOR DESIGN
Emotion Soft Dark - 8"x40"



01 WIDE LOOKS RANGE.

BLUESTONE DESIGN PROJECT



TUMBLLED BLUESTONE

V3 AMERICANSTONE



TUMBLLED BLUESTONE COBBLESTONE CUBE

V3 AMERICANSTONE



TUMBLLED BLUESTONE COBBLESTONE MULTISIZE

V3 AMERICANSTONE

BLUESTONE DESIGN PROJECT



THERMAL BLUESTONE BLUE SELECT

V2 AMERICANSTONE



BLUESTONE BLUE SELECT

V2 AMERICANSTONE



BLUE SELECT BLUESTONE COBBLESTONE CUBE

V2 AMERICANSTONE



BLUE SELECT BLUESTONE COBBLESTONE MULTISIZE

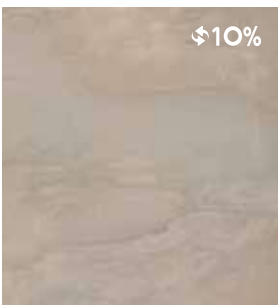
V2 AMERICANSTONE

BLUESTONE DESIGN PROJECT



THERMAL BLUESTONE FULL COLOR

V3 AMERICANSTONE



BLUESTONE FULL COLOR

V4 AMERICANSTONE



FULL COLOR BLUESTONE COBBLESTONE CUBE

V3 AMERICANSTONE



FULL COLOR BLUESTONE COBBLESTONE MULTISIZE

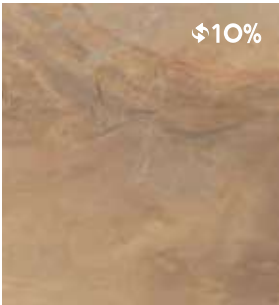
V3 AMERICANSTONE

FLAGSTONE LOOK



FLAGSTONE PINK-TAN

V4 AMERICANSTONE



FLAGSTONE BROWN

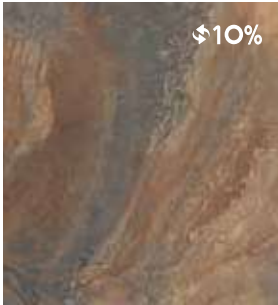
V3 AMERICANSTONE

SLATE LOOK



MULTICOLOR GOLD

V3 AMERICANSTONE



MULTICOLOR DARK

V3 AMERICANSTONE



VINTAGE SLAB

V2 AMERICANSTONE

TRAVERTINE LOOK



TRAVERTINE CROSS CUT NOCE

V2 AMERICANSTONE



TRAVERTINE CROSS CUT SILVER

V2 AMERICANSTONE



TRAVERTINE CROSS CUT CREAM

V2 AMERICANSTONE



TRAVERTINE CROSS CUT WHITE

V2 AMERICANSTONE



SOURCE BEIGE

V2

LIMESTONE LOOK



LIMESTONE

V2 AMERICANSTONE

QUARTZ LOOK



SILVER QUARTZ

V3



BARGE GOLD

V3



PIETRA DI BARGE

V2



POINT SILVER

V2

01 WIDE LOOKS RANGE.

STONE LOOK



NATURAL IVORY

MODERN GREY



V2



V2



STONE LOOK



PIETRA DI BAGNOLO

SKY

DESERT

ABSOLUTE

COSMOS



V2



V2



V2



V2



V2



CONCRETE LOOK



SIMPLY GREY

WARM SAND

FREEDOM WHITE

PASSION SILVER

MICHELANGELO EXTRA WHITE



V1



V1



V2



V2



V2



WOOD LOOK



WALNUT

PEPPER

SOUL WALNUT

SOUL GREY



V3



V3



V2



V2



WOOD LOOK



ESSENCE GREY

ESSENCE BROWN



V2



V2



02 THE AMERICAN SOUL OF THE REAL AMERICAN STONES.



PROJECT
FLOOR DESIGN
Frontier20 Bluestone Blue Select - 24"x24"
Frontier20 Bluestone Blue Select Linear Cover Drain Set - 24"x24"

Frontier20 American Stone is a collection of some of the most regionally popular natural stones from across the nation. Elegant rangy Bluestone from the North East, earth tone tans browns from the desert south west to the classic heartland Cherokee pinks, tans and coffee brown, even the pacific northwest's deep charcoals and grey. The American Stone range also includes prestigious travertine cut against the vein, a stone commonly found in the southwest distinguished by the timeless beauty and appeal of the original material. Naturally inspired color that are rich, sophisticated and bold enough to make a statement yet versatile enough to seamlessly bled your home's interior charm with your outdoor living area.

AMERICANSTONE★

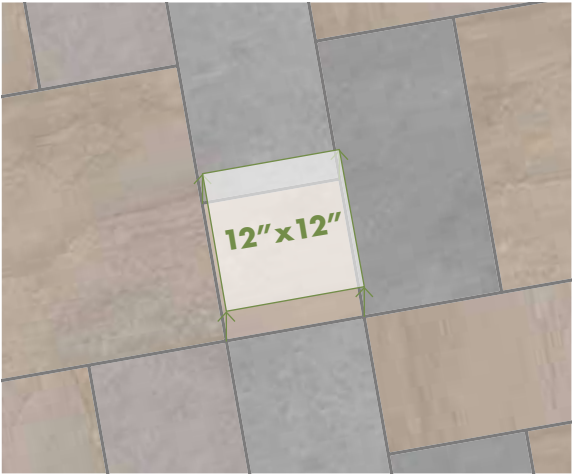
Unlike natural stone, American Stone is uniform in thickness and consistent in size, affording the most in design flexibility and cost saving installation. American Stone is extremely durable, will never fade, impervious to chemicals or salts, can be easily cleaned without harsh chemicals and never needs sealed. **Landmark's American Stone is freedom.**

PROJECT
FLOOR DESIGN
Frontier20 Multicolor Dark - 24"x24"



PROJECT
OUTDOOR FLOOR DESIGN
Frontier20 Full Color Bluestone Cobblestone Cube - 24"x24"
Frontier20 Simply Grey - 18"x36"
OUTDOOR WALL DESIGN
Frontier20 Bluestone Blue Select - 12"x24"
CAFETERIA COUNTER
Emotion Soft Dark - 8"x40"
BENCHES
Frontier20 Simply Grey - 18"x36"

03
**A WIDE RANGE
OF DIFFERENT SIZES.**
DIFFERENT SIZES, GREATER FREEDOM.



Frontier20 is characterized by a wide range of sizes from the small **12"x12"** and **12"x24"** up to the bigger **18"x36"** and **24"x48"**, from the classic **24"x24"** to the refined **12"x48"** and **16"x48"** plank size. Frontier20 ensures freedom in every design project.

04
BLUESTONE DESIGN PROJECT.
REDEFINE TRADITIONS.



Bluestone Design Project is a premium line inspired by the finest Pennsylvania native bluestone, widely used for prestigious projects all over North America.

A highly versatile outdoor collection with infinite combinations of colors, sizes, trim pieces and finishes, designed to meet the demands of Total Look outdoor projects.

PROJECT

- OUTDOOR FLOOR DESIGN
Frontier20 Tumbled Bluestone - 9"x9"
Frontier20 Tumbled Bluestone - 9"x18"
Frontier20 Tumbled Bluestone Cobblestone Multisize - 24"x24"
WALL DESIGN
Vision Concrete - 24"x48"



PROJECT

- OUTDOOR FLOOR DESIGN
Frontier20 Thermal Bluestone Blue Select - 24"x24"
Frontier20 Thermal Bluestone Blue Select Coping - 24"x13"
Frontier20 Thermal Bluestone Blue Select Coping Corner - 24"x13"

04 **BLUESTONE DESIGN PROJECT.**
HIGH-TIER FINISH.

The Bluestone Design Project comes with the most refined and prestigious finishes available with the Pennsylvania stone.



**NATURAL
(CLEFT)**

The traditional, natural split-stone finish, highlights the stone's uniquely layered structure.



TUMBLLED

A prestigious finish that lends the surface its distinctive antiqued look, cherished for its rugged yet elegant nature.

04 BLUESTONE DESIGN PROJECT.

COLORS AND DESIGN.

The Bluestone Design Project explores the most exceptional and defining traits of the Pennsylvania native bluestone, such as the Blue Select color, known for its uniform and intense gray-blue shade, or the Full Color alternative, where polychromy and dynamic design meet to create an array of combinations. Bluestone Design Project also revisits the prestigious Tumbled design, breathing new life into a historical pattern and the Cobblestone variant, enriched by infinite multicolored nuances.

Bluestone Design Project offers an ample choice of customizable solutions, with options ranging from the standard 24"x24" size to 12"x24", 24"x36", 24"x48", and 12"x12". The antiqued Tumbled finish is available in the 9"x9" and 9"x18" versions, while the Cobblestone model comes in the traditional Cube pattern or in the unique Multisize variant.

Bluestone Design Project presents an ample choice of boundless combinations.



TUMBLLED



TUMBLLED BLUESTONE



TUMBLLED BLUESTONE COBBLESTONE CUBE



TUMBLLED BLUESTONE COBBLESTONE MULTISIZE



BLUE SELECT



THERMAL BLUESTONE BLUE SELECT



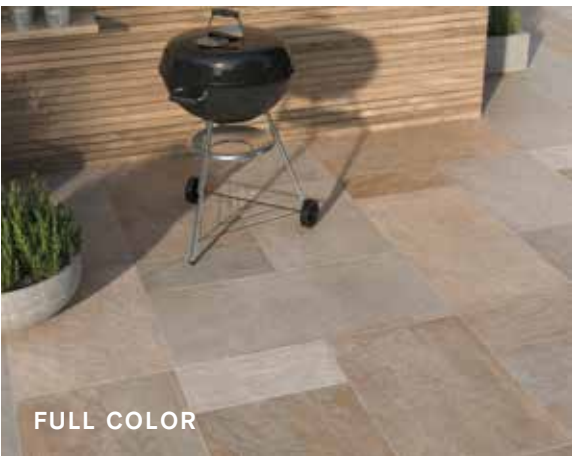
BLUESTONE BLUE SELECT



BLUE SELECT BLUESTONE COBBLESTONE CUBE



BLUE SELECT BLUESTONE COBBLESTONE MULTISIZE



FULL COLOR



THERMAL BLUESTONE FULL COLOR



BLUESTONE FULL COLOR



FULL COLOR BLUESTONE COBBLESTONE CUBE



FULL COLOR BLUESTONE COBBLESTONE MULTISIZE

M.P.D.

MULTI PATTERN DESIGN

The **Multi Pattern Design** (M.P.D.) is a project designed to allow combination of multiple size patterns and therefore develop creative and original outdoor design solutions. M.P.D. project is available in three different versions:

- **M.P.D. Big:** allows multiple big size patterns made by using 4 formats (24"x48", 24"x36", 24"x24", 12"x24")
- **M.P.D. Small:** combines 12"x12", 12"x24" and 24"x24" formats to create smaller size patterns.
- **M.P.D. Mini:** combines 9"x9" and 9"x18" to create refined and precious patterns.

PROJECT

FLOOR DESIGN

Frontier20 Blue Stone Blue Select - 12"x24"

Frontier20 Blue Stone Blue Select - 24"x24"

Frontier20 Blue Stone Blue Select - 24"x36"

Frontier20 Blue Stone Blue Select - 24"x48"

Frontier20 Blue Stone Blue Select Stair Tread - 24"x13"

M.P.D. BIG ONE*

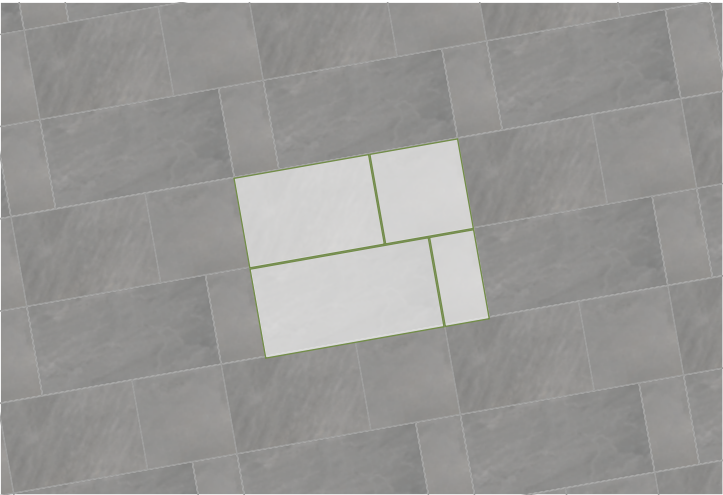
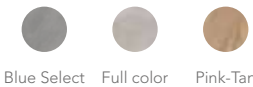


Module percentage

24"x48" = 40%
24"x24" = 20%
24"x36" + 12"x24" (MIX) = 40% **



Available colors



* Modular products with 4 mm joint (approx 5/32").

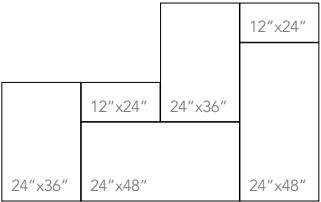
** NOTE
The 24"x36" and 12"x24" sizes (MIX) are palletized together on the same single pallet containing the correct percentages of each size.

M.P.D. BIG TWO*

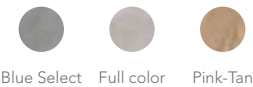


Module percentage

24"x48" = 50%
24"x24" = 0%
24"x36" + 12"x24" (MIX) = 50% **



Available colors



* Modular products with 4 mm joint (approx 5/32").

** NOTE
The 24"x36" and 12"x24" sizes (MIX) are palletized together on the same single pallet containing the correct percentages of each size.

M.P.D. BIG THREE*

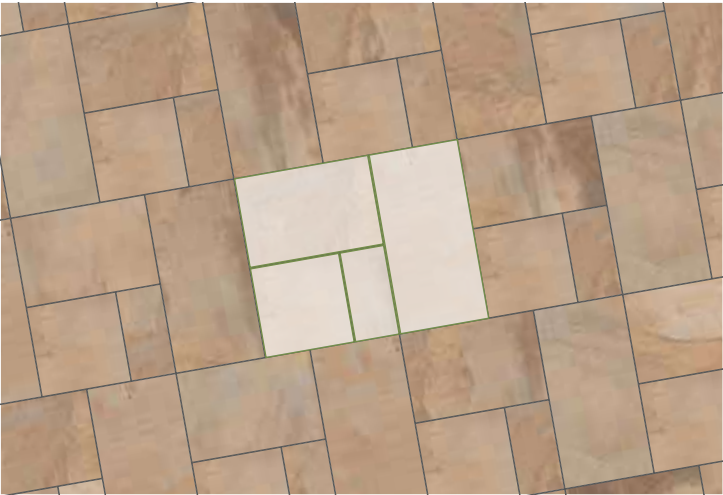
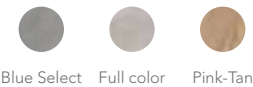


Module percentage

24"x48" = 40%
24"x24" = 20%
24"x36" + 12"x24" (MIX) = 40% **



Available colors



* Modular products with 4 mm joint (approx 5/32").

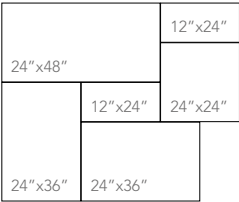
** NOTE
The 24"x36" and 12"x24" sizes (MIX) are palletized together on the same single pallet containing the correct percentages of each size.

M.P.D. BIG FOUR*

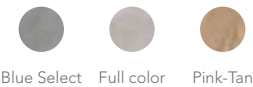


Module percentage

24"x48" = 28.6%
24"x24" = 14.3%
24"x36" + 12"x24" (MIX) = 57.1% **



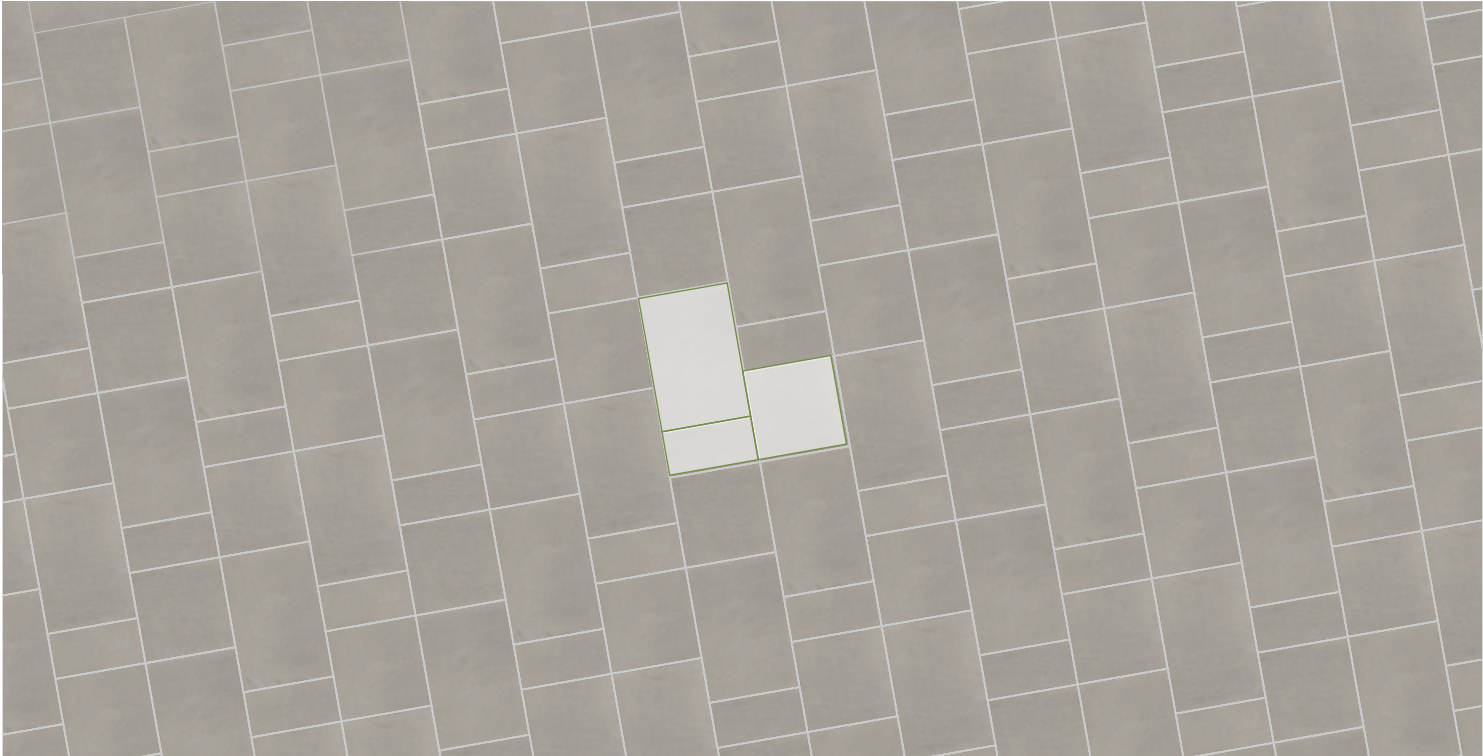
Available colors



* Modular products with 4 mm joint (approx 5/32").

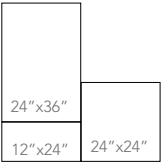
** NOTE
The 24"x36" and 12"x24" sizes (MIX) are palletized together on the same single pallet containing the correct percentages of each size.

M.P.D. BIG FIVE*



Module percentage

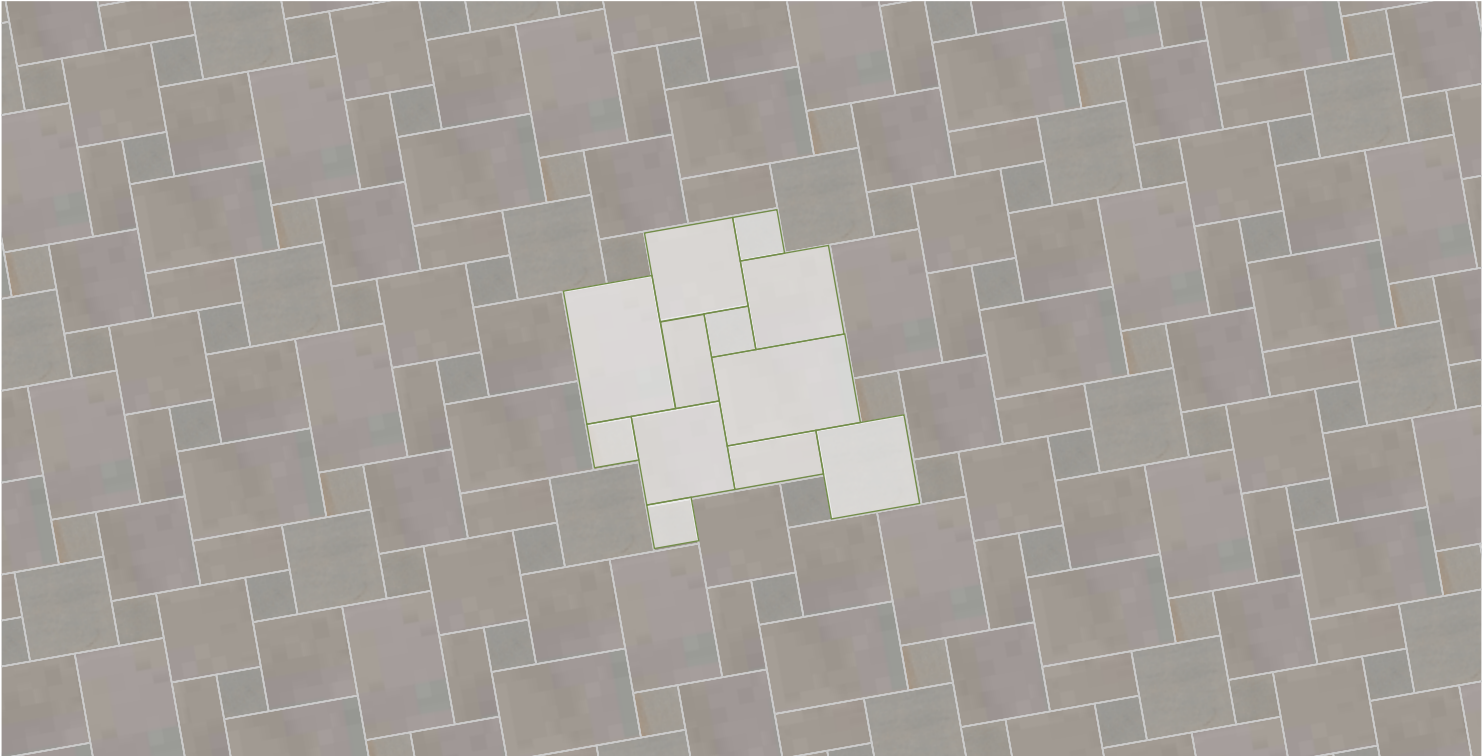
12"x24" = 17%
24"x24" = 33%
24"x36" = 50%



Available colors

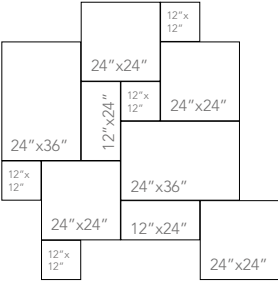


M.P.D. BIG SIX*



Module percentage

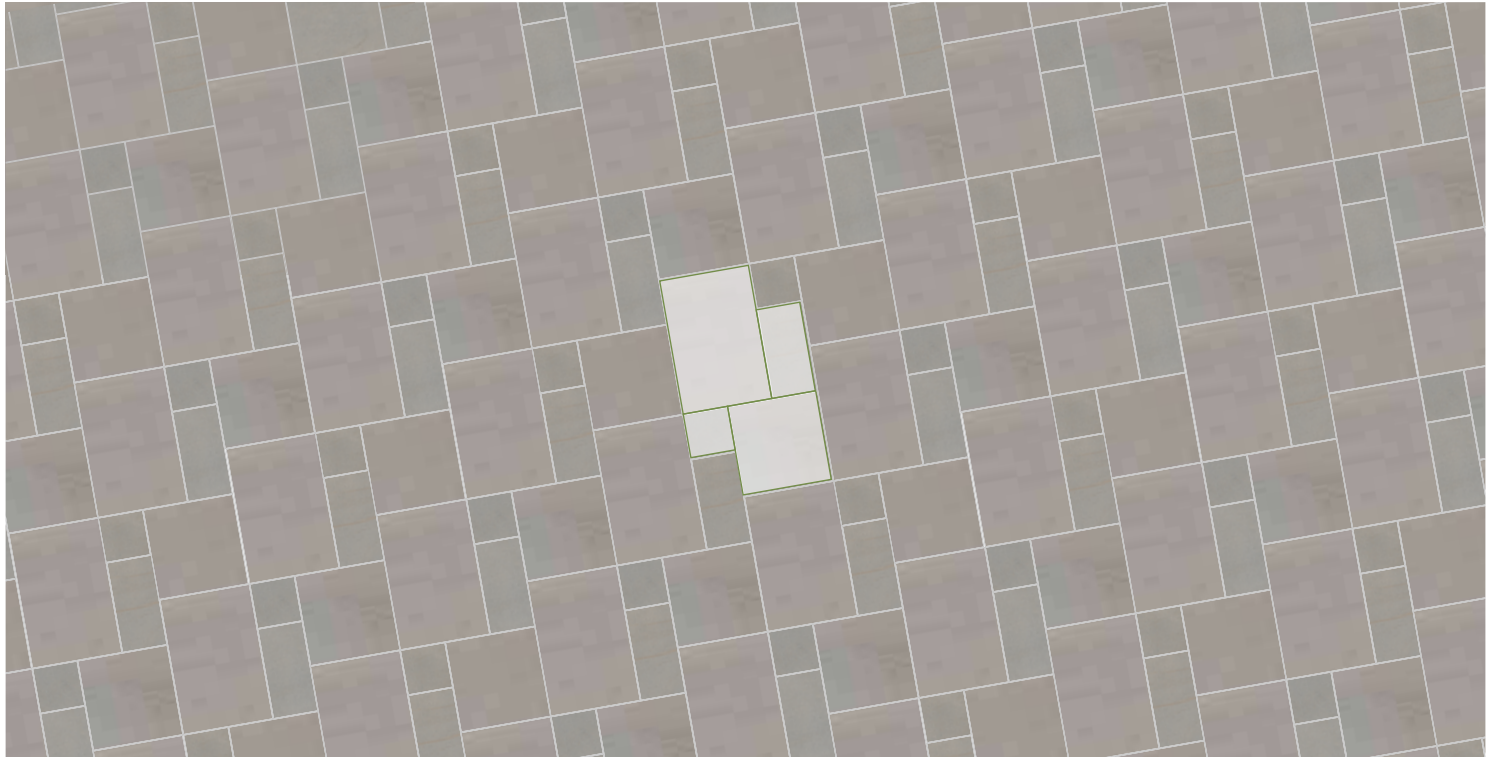
12"x12" = 11% 24"x24" = 45%
12"x24" = 11% 24"x36" = 33%



Available colors

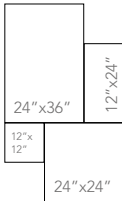


M.P.D. BIG SEVEN*



Module percentage

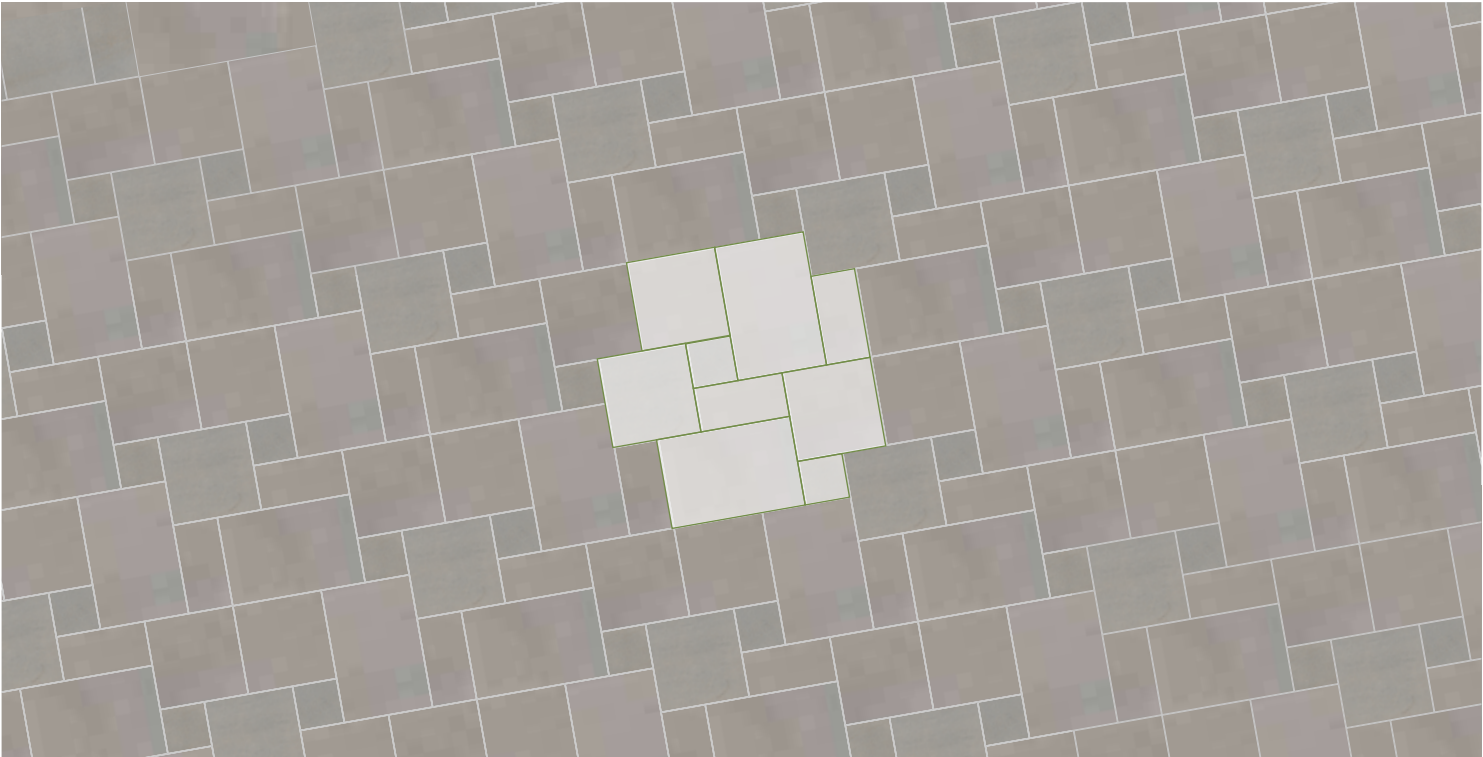
12"x12" = 8%
12"x24" = 15%
24"x24" = 31%
24"x36" = 46%



Available colors

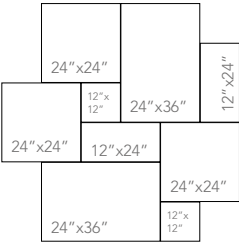


M.P.D. BIG EIGHT*



Module percentage

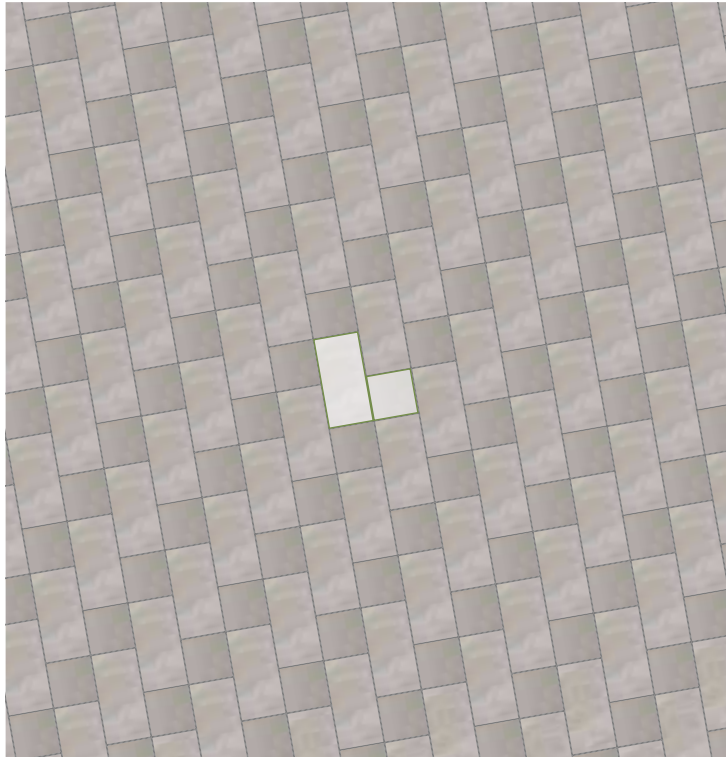
12"x12" = 7% 24"x24" = 40%
12"x24" = 13% 24"x36" = 40%



Available colors



M.P.D. SMALL ONE*



Module percentage

12"x24" = 67%
12"x12" = 33%

12"x24"

12"x12"

Available colors

Blue Select

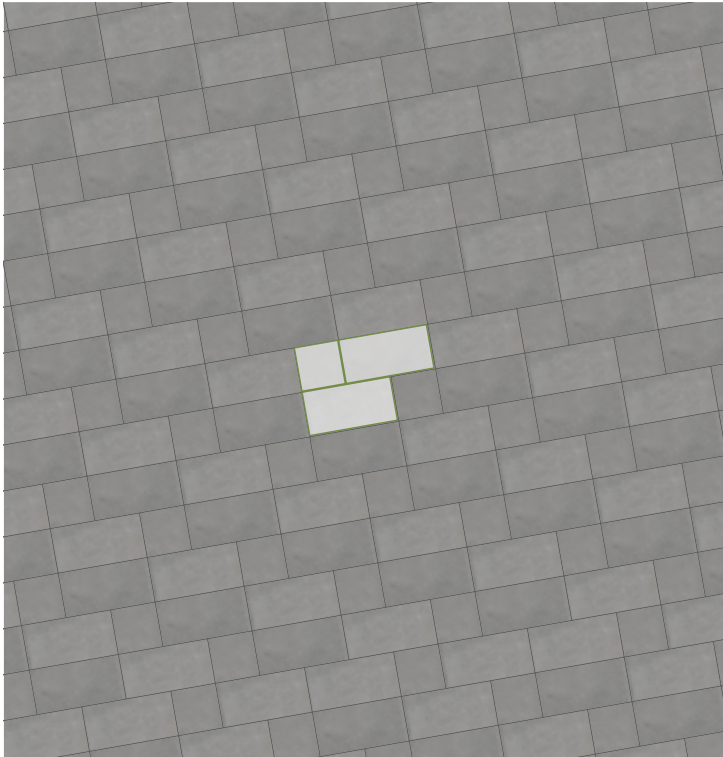
Full color

Pink-Tan

Thermal Bluestone Blue Select

Thermal Bluestone Full Color

M.P.D. SMALL TWO*



Module percentage

12"x24" = 80%
12"x12" = 20%

12"x12"

12"x24"

12"x24"

Available colors

Blue Select

Full color

Pink-Tan

Thermal Bluestone Blue Select

Thermal Bluestone Full Color

M.P.D. SMALL THREE*



Module percentage

24"x24" = 50%
12"x24" = 50%

12"x24"

24"x24"

12"x24"

Available colors

Blue Select

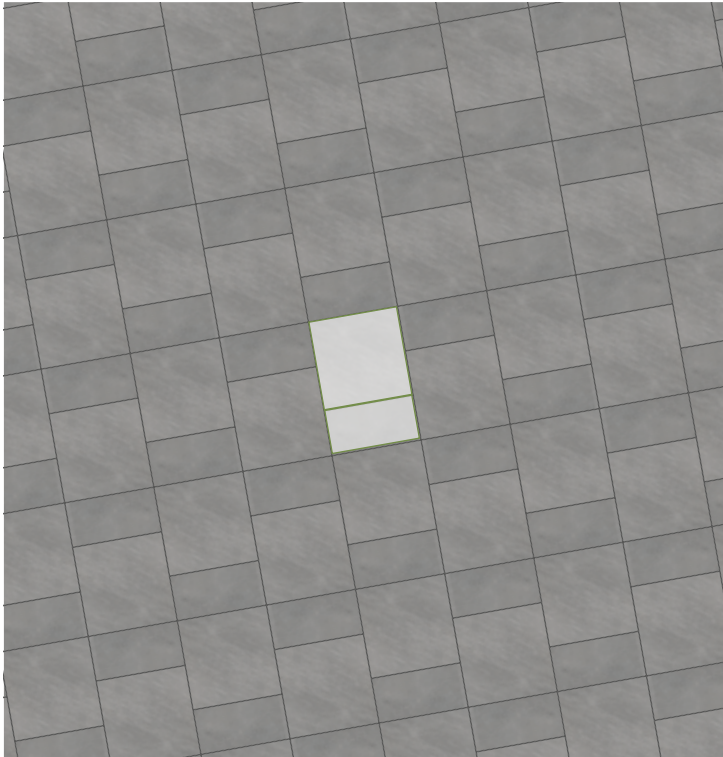
Full color

Pink-Tan

Thermal Bluestone Blue Select

Thermal Bluestone Full Color

M.P.D. SMALL FOUR*



Module percentage

24"x24" = 67%
12"x24" = 33%

24"x24"

12"x24"

Available colors

Blue Select

Full color

Pink-Tan

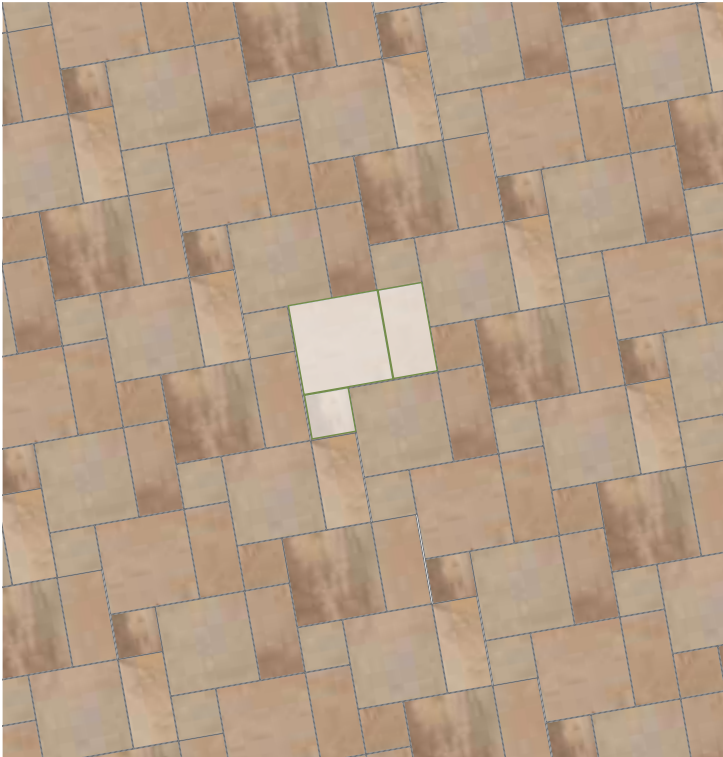
Thermal Bluestone Blue Select

Thermal Bluestone Full Color

* Modular products with 4 mm joint (approx 5/32").

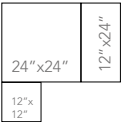
* Modular products with 4 mm joint (approx 5/32").

M.P.D. SMALL FIVE*



Module percentage

12"x12" = 14%
12"x24" = 29%
24"x24" = 57%



Available colors

Blue Select

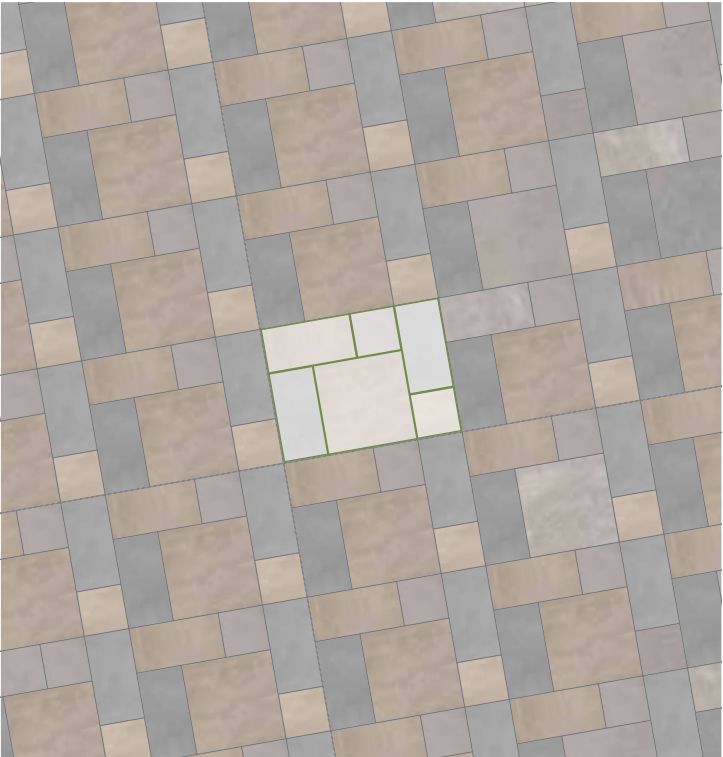
Full color

Pink-Tan

Thermal
Bluestone
Blue Select

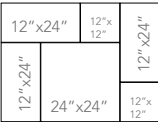
Thermal
Bluestone
Full Color

M.P.D. SMALL SIX*



Module percentage

12"x12" = 17%
12"x24" = 50%
24"x24" = 33%



Available colors

Blue Select

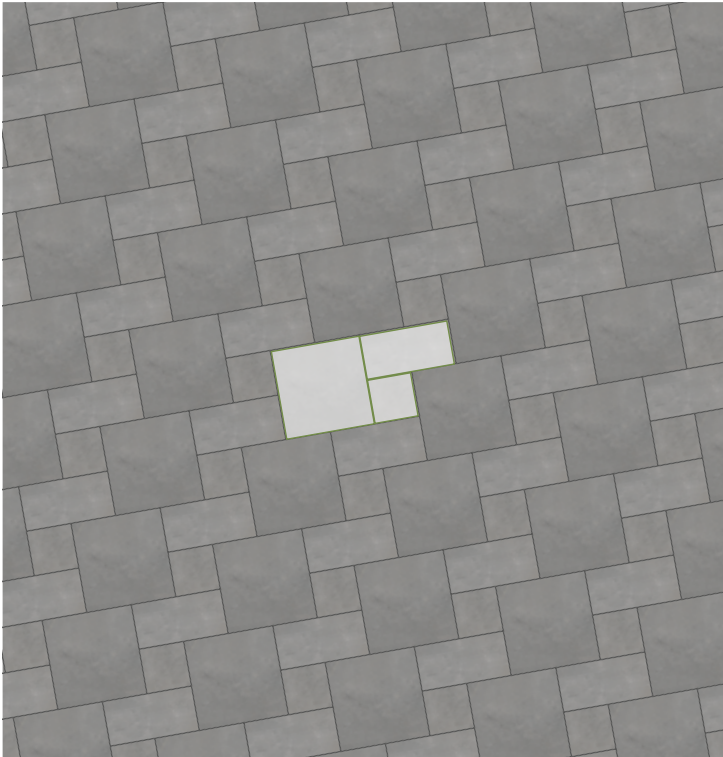
Full color

Pink-Tan

Thermal
Bluestone
Blue Select

Thermal
Bluestone
Full Color

M.P.D. SMALL SEVEN*



Module percentage

12"x12" = 14%
12"x24" = 29%
24"x24" = 57%



Available colors

Blue Select

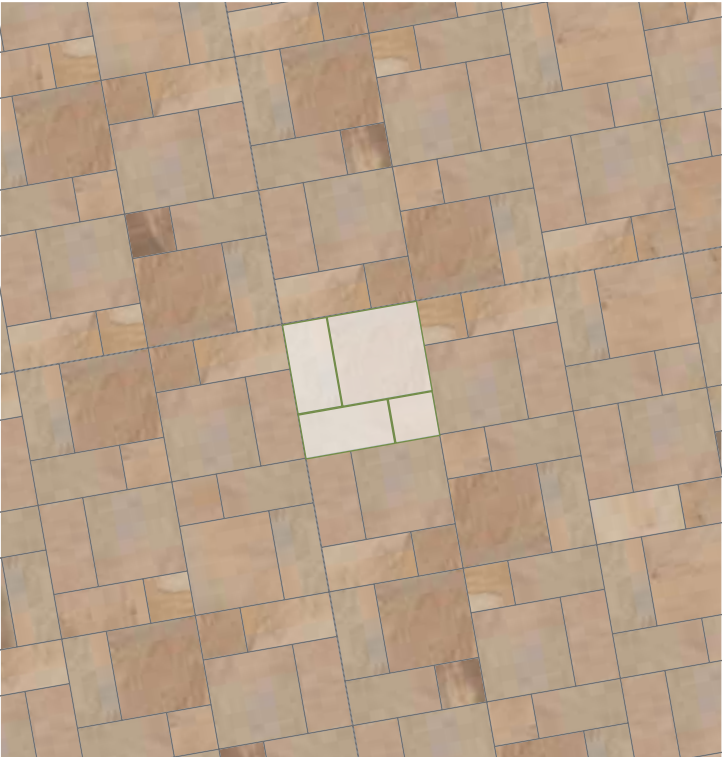
Full color

Pink-Tan

Thermal
Bluestone
Blue Select

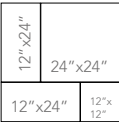
Thermal
Bluestone
Full Color

M.P.D. SMALL EIGHT*



Module percentage

12"x12" = 11%
12"x24" = 45%
24"x24" = 44%



Available colors

Blue Select

Full color

Pink-Tan

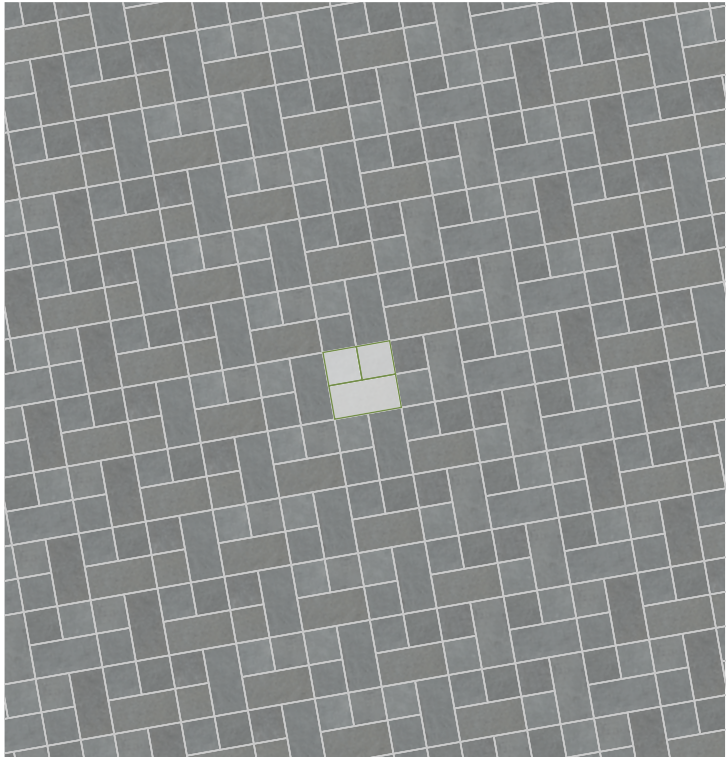
Thermal
Bluestone
Blue Select

Thermal
Bluestone
Full Color

* Modular products with 4 mm joint (approx 5/32").

* Modular products with 4 mm joint (approx 5/32").

M.P.D. MINI ONE*



Module percentage

9"x9" = 50%

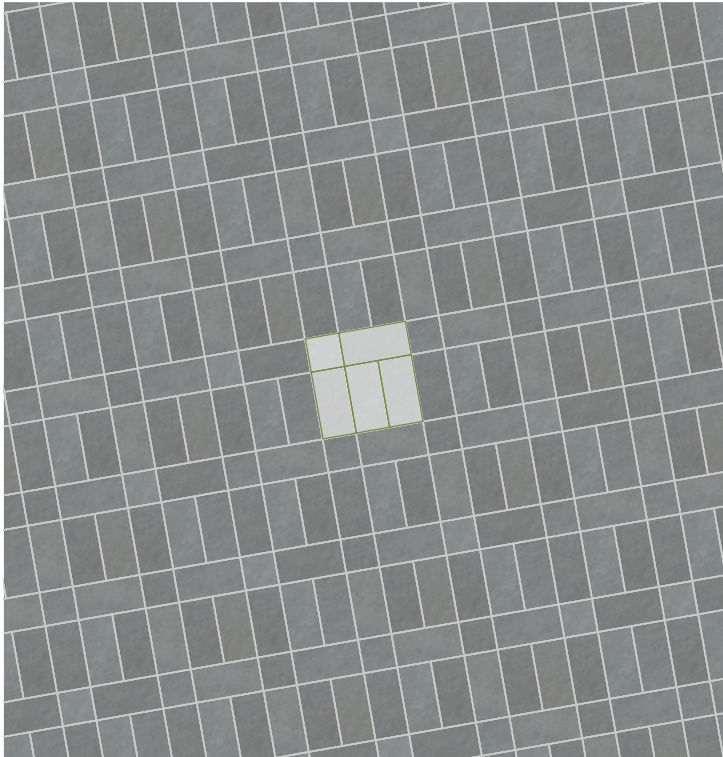
9"x18" = 50%

9"x9"	9"x9"
9"x18"	

Available colors

Tumbled Bluestone

M.P.D. MINI TWO*



Module percentage

9"x9" = 11%

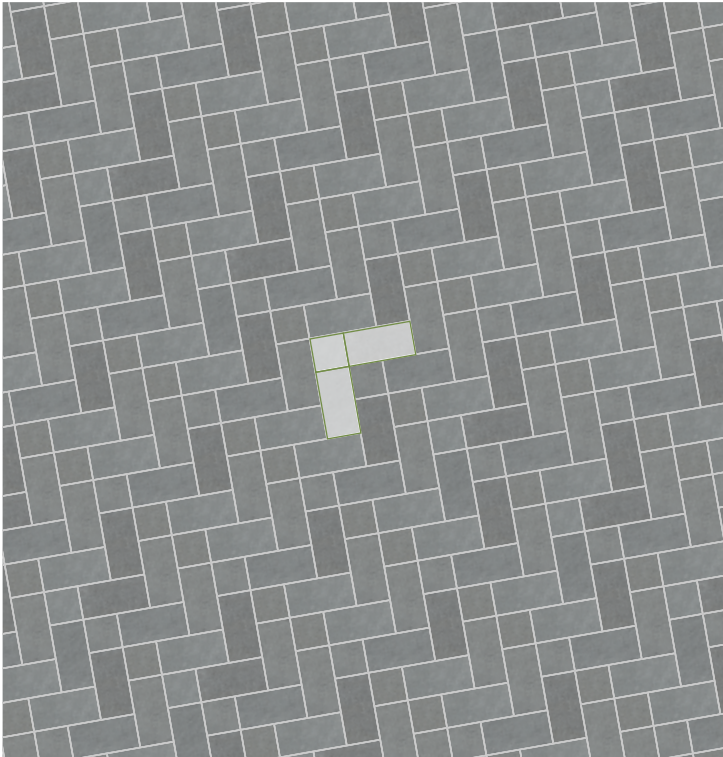
9"x18" = 89%

9"x9"	9"x18"
9"x18"	9"x18"

Available colors

Tumbled Bluestone

M.P.D. MINI THREE*



Module percentage

9"x9" = 20%

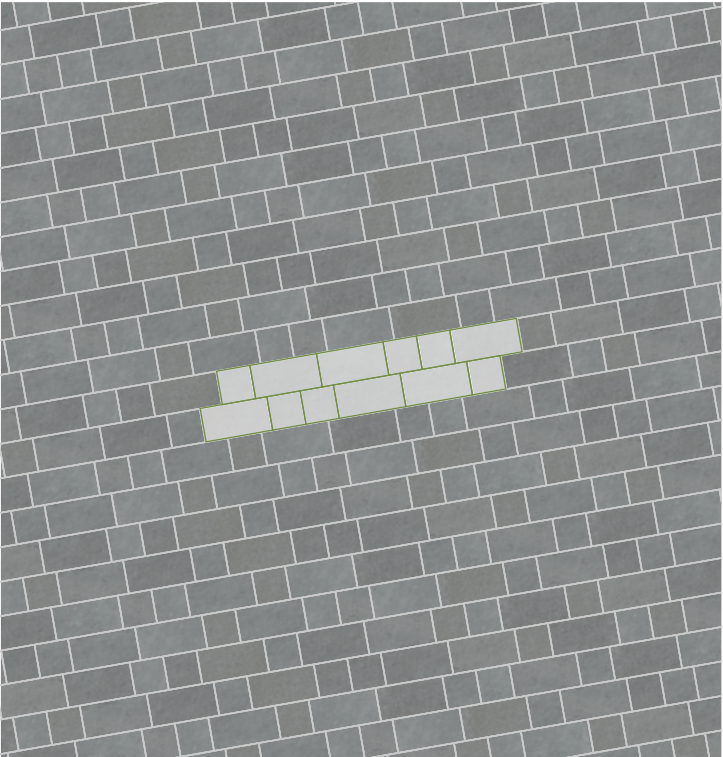
9"x18" = 80%

9"x9"	9"x18"
9"x18"	

Available colors

Tumbled Bluestone

M.P.D. MINI FOUR*



Module percentage

9"x9" = 33%

9"x18" = 67%

9"x9"	9"x18"	9"x18"	9"x9"	9"x9"	9"x18"
9"x18"	9"x9"	9"x9"	9"x18"	9"x18"	9"x9"

Available colors

Tumbled Bluestone

* Modular products with 4 mm joint (approx 5/32").

* Modular products with 4 mm joint (approx 5/32").

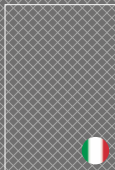
BLUESTONE DESIGN PROJECT

THERMAL BLUESTONE
BLUE SELECT

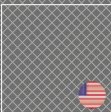
AMERICANSTONE ★



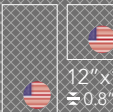
Available sizes



24"x36"
± 0.8"



24"x24"
± 0.8"



12"x24"
± 0.8"



12"x12"
± 0.8"

Color shading



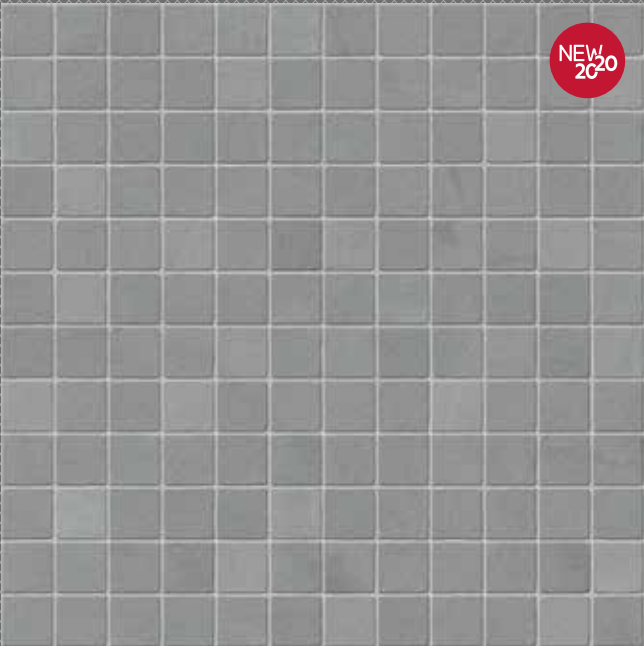
The color of pavers printed in this catalog may differ from actual pavers. Paver color reproductions in this catalog are representative only. Slight tone and shade variations are inherent in porcelain pavers. Before selecting a color, we recommend that you contact your local representative, who will provide you with a sample piece of the requested paver.

This porcelain paver product is manufactured with a V2 shade variation. Remember that the amount of color as well as the texture of each piece may vary from paver to paver. Inspect the product immediately upon delivery and select pavers from many boxes during installation to minimize and blend any possible color difference.

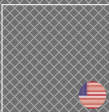
BLUESTONE DESIGN PROJECT

BLUE SELECT BLUESTONE
COBBLESTONE CUBE

AMERICANSTONE ★



Available size



24"x24"
± 0.8"

Color shading





V1
UNIFORM APPEARANCE



V2
SLIGHT VARIATION



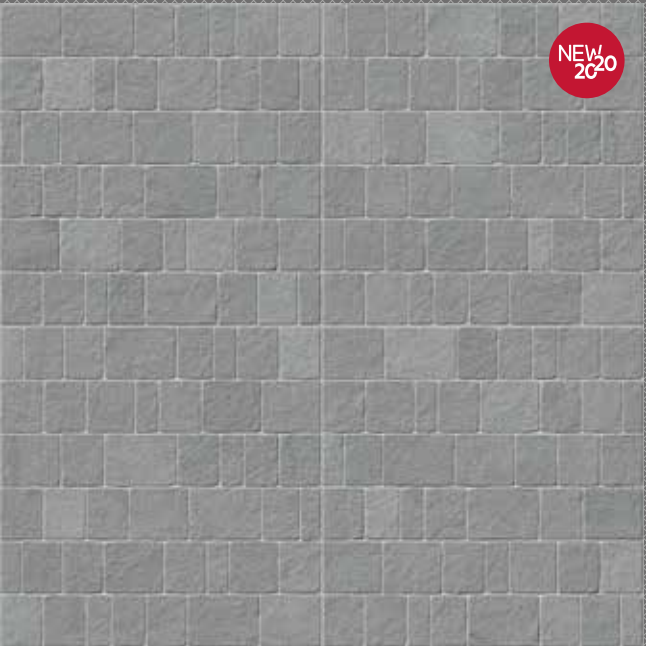
V3
MODERATE VARIATION



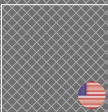
V4
SUBSTANTIAL VARIATION

BLUE SELECT BLUESTONE
COBBLESTONE MULTISIZE

AMERICANSTONE ★



Available size



24"x24"
± 0.8"

Color shading



BLUESTONE DESIGN PROJECT

THERMAL BLUESTONE
FULL COLOR

AMERICANSTONE ★



Available sizes



Color shading

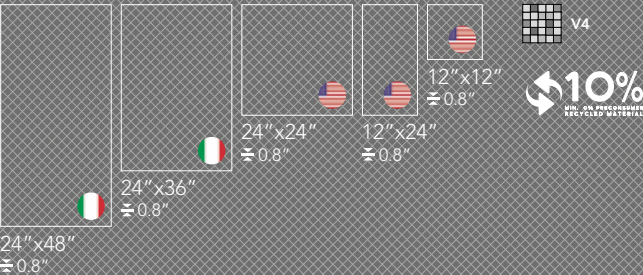


BLUESTONE FULL COLOR

AMERICANSTONE ★



Available sizes



Color shading



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This porcelain paver product is manufactured with a V3/V4 shade variation. Remember that the amount of color as well as the texture of each piece may vary from paver to paver. Inspect the product immediately upon delivery and select pavers from many boxes during installation to minimize and blend any possible color difference.

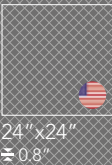
BLUESTONE DESIGN PROJECT

FULL COLOR BLUESTONE
COBBLESTONE CUBE

AMERICANSTONE ★



Available size



Color shading



FULL COLOR BLUESTONE
COBBLESTONE MULTISIZE

AMERICANSTONE ★



Available size



Color shading



Color Shading



BLUESTONE DESIGN PROJECT

TUMBLLED BLUESTONE

AMERICANSTONE ★



Available sizes



Color shading

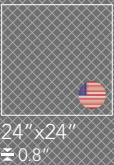


TUMBLLED BLUESTONE
COBBLESTONE CUBE

AMERICANSTONE ★



Available size



Color shading



BLUESTONE DESIGN PROJECT

TUMBLLED BLUESTONE
COBBLESTONE MULTISIZE

AMERICANSTONE ★



Available size



Color shading



The color of pavers printed in this catalog may differ from actual pavers. Paver color reproductions in this catalog are representative only. Slight tone and shade variations are inherent in porcelain pavers. Before selecting a color, we recommend that you contact your local representative, who will provide you with a sample piece of the requested paver.

This porcelain paver product is manufactured with a V3 shade variation. Remember that the amount of color as well as the texture of each piece may vary from paver to paver. Inspect the product immediately upon delivery and select pavers from many boxes during installation to minimize and blend any possible color difference.

Color Shading

V1	V2	V3	V4
UNIFORM APPEARANCE	SLIGHT VARIATION	MODERATE VARIATION	SUBSTANTIAL VARIATION

FLAGSTONE LOOK

FLAGSTONE PINK-TAN AMERICANSTONE★



Available sizes

24"x36"

± 0.8"

Italy

24"x24"

± 0.8"

USA

12"x24"

± 0.8"

USA

12"x12"

± 0.8"

USA

Color shading

V4

10% MIN. ON PRECUTS RECYCLED MATERIAL

FLAGSTONE BROWN AMERICANSTONE★



Available size

24"x24"

± 0.8"

USA

Color shading

V3

10% MIN. ON PRECUTS RECYCLED MATERIAL

The color of pavers printed in this catalog may differ from actual pavers. Paver color reproductions in this catalog are representative only. Slight tone and shade variations are inherent in porcelain pavers. Before selecting a color, we recommend that you contact your local representative, who will provide you with a sample piece of the requested paver.

This porcelain paver product is manufactured with a V3/V4 shade variation. Remember that the amount of color as well as the texture of each piece may vary from paver to paver. Inspect the product immediately upon delivery and select pavers from many boxes during installation to minimize and blend any possible color difference.



PROJECT
OUTDOOR FLOOR DESIGN
Frontier20 Flagstone Pink-Tan - 24"x24"

SLATE LOOK

MULTICOLOR GOLD

AMERICANSTONE ★

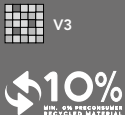


Available size



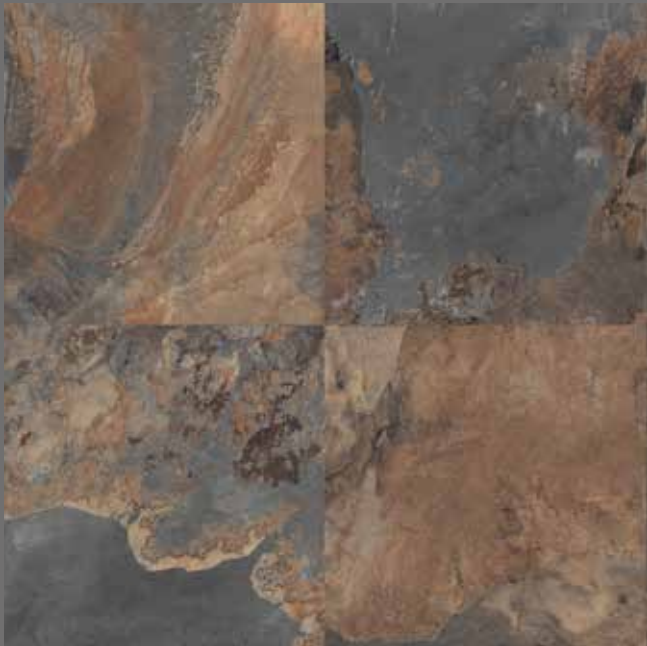
24"x24"
± 0.8"

Color shading



MULTICOLOR DARK

AMERICANSTONE ★



Available size



24"x24"
± 0.8"

Color shading



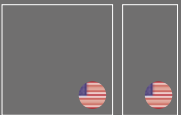
SLATE LOOK

VINTAGE SLAB

AMERICANSTONE ★



Available sizes



24"x24"
± 0.8" 12"x24"
± 0.8"

Color shading

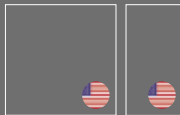


LIMESTONE

AMERICANSTONE ★

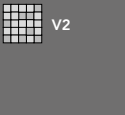


Available sizes



24"x24"
± 0.8" 12"x24"
± 0.8"

Color shading



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This porcelain paver product is manufactured with a V2/V3 shade variation. Remember that the amount of color as well as the texture of each piece may vary from paver to paver. Inspect the product immediately upon delivery and select pavers from many boxes during installation to minimize and blend any possible color difference.

Color Shading

V1 UNIFORM APPEARANCE	V2 SLIGHT VARIATION	V3 MODERATE VARIATION	V4 SUBSTANTIAL VARIATION

TRAVERTINE LOOK

TRAVERTINE CROSS CUT WHITE AMERICANSTONE ★



Available size

Color shading

24" x 24"
± 0.8"

V2

TRAVERTINE CROSS CUT SILVER AMERICANSTONE ★



Available size

Color shading

24" x 24"
± 0.8"

V2

10%
MIN. 5% PRECONSUMER
RECYCLED MATERIAL

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TRAVERTINE LOOK

TRAVERTINE CROSS CUT CREAM AMERICANSTONE ★



Available size

Color shading

24" x 24"
± 0.8"

V2

TRAVERTINE CROSS CUT NOCE AMERICANSTONE ★



Available size

Color shading

24" x 24"
± 0.8"

V2

10%
MIN. 5% PRECONSUMER
RECYCLED MATERIAL

Color Shading

V1
UNIFORM APPEARANCE

V2
SLIGHT VARIATION

V3
MODERATE VARIATION

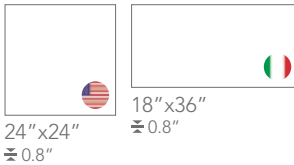
V4
SUBSTANTIAL VARIATION

CONCRETE LOOK

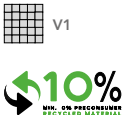
SIMPLY GREY



Available sizes



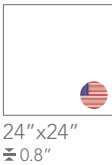
Color shading



WARM SAND



Available size



Color shading

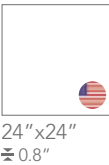


CONCRETE LOOK

FREEDOM WHITE



Available size



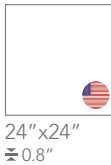
Color shading



PASSION SILVER



Available size



Color shading



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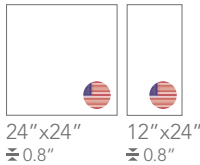
Color Shading			
V1	V2	V3	V4
UNIFORM APPEARANCE	SLIGHT VARIATION	MODERATE VARIATION	SUBSTANTIAL VARIATION

QUARTZ LOOK

BARGE GOLD



Available sizes



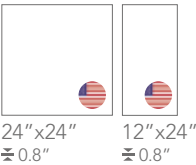
Color shading



SILVER QUARTZ



Available sizes



Color shading



MARBLE LOOK

MICHELANGELO EXTRA WHITE



Available size

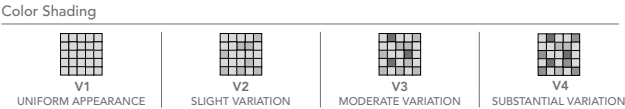


Color shading



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STONE LOOK

SKY



Available size



24" x 24"
± 0.8"

Color shading



V2

DESERT



Available size



24" x 24"
± 0.8"

Color shading



V2

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STONE LOOK

ABSOLUTE



Available size



24" x 24"
± 0.8"

Color shading



V2



COSMOS



Available size



24" x 24"
± 0.8"

Color shading



V2

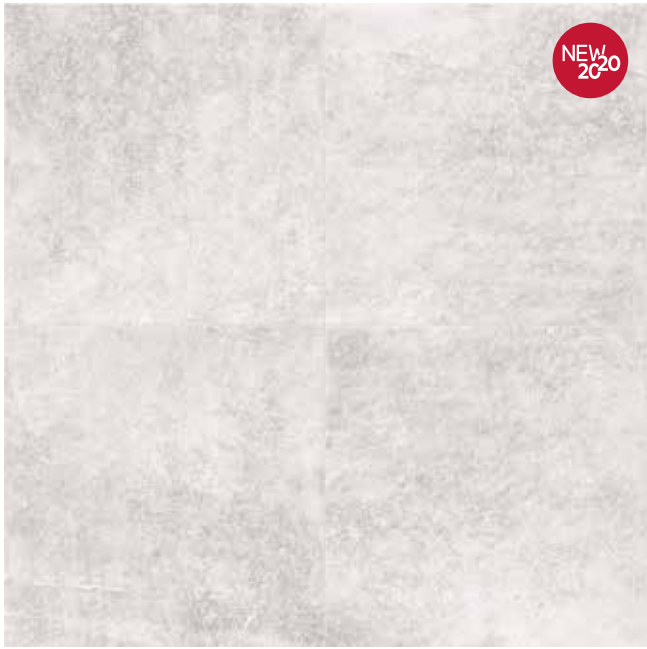


Color Shading

			
V1	V2	V3	V4
UNIFORM APPEARANCE	SLIGHT VARIATION	MODERATE VARIATION	SUBSTANTIAL VARIATION

STONE LOOK

NATURAL IVORY



Available size



24" x 24"
± 0.8"

Color shading



MODERN GREY



Available size



24" x 24"
± 0.8"

Color shading



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WOOD LOOK

WALNUT



Available size



24" x 24"
± 0.8"

Color shading



PEPPER



Available size



24" x 24"
± 0.8"

Color shading



Color Shading			
V1	V2	V3	V4
UNIFORM APPEARANCE	SLIGHT VARIATION	MODERATE VARIATION	SUBSTANTIAL VARIATION

WOOD LOOK

ESSENCE GREY



Available size

12" x 48"

± 0.8"

Color shading

V2

ESSENCE BROWN



Available size

12" x 48"

± 0.8"

Color shading

V2

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WOOD LOOK

SOUL WALNUT



Available size

12" x 48"

± 0.8"

Color shading

V2

SOUL GREY



Available size

12" x 48"

± 0.8"

Color shading

V2

Color Shading

V1

UNIFORM APPEARANCE

V2

SLIGHT VARIATION

V3

MODERATE VARIATION

V4

SUBSTANTIAL VARIATION

STONE LOOK

PIETRA DI BAGNOLO



Available size



18" x 36"
± 0.8"

Color shading



V2

TRAVERTINE LOOK

SOURCE BEIGE



Available size



18" x 36"
± 0.8"

Color shading



V2

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QUARTZ LOOK

PIETRA DI BARGE



Available size



18" x 36"
± 0.8"

Color shading



V2

POINT SILVER



Available size



18" x 36"
± 0.8"

Color shading



V2

Color Shading



INSTALLATION INFORMATION AND RECOMMENDATIONS.

INSTALLATION INFORMATION AND RECOMMENDATIONS.

Specific details and instructions are given for each of the following installation options. Different climates and geographical locations will affect the thickness of the base. Depending on the location, contractors will install the standard base thickness to install porcelain pavers for the needs of the area. When installing porcelain pavers, the bedding course sand must be pre-compacted and then struck off with a screed to the required thickness as shown in the drawings. Before the laying of the porcelain pavers, the sand layer underneath must be pre-compacted. The sand layer needs a 5 to 6% moisture content to insure a smooth strike off finish.

Compacting dry sand will not give the desired results.

- Only use a paver saw with a wet cut porcelain blade to wet cut porcelain pavers.
- Before installing your porcelain pavers in sand set installations, pre-compact and strike off your sand leveling course.
- Plastic $\frac{3}{16}$ " (4 mm) spacers must always be used to install pavers on sand set and permeable installations. The photo on the right illustrates the use of the $\frac{3}{16}$ " spacer to support and space the 4 paver corners.
- Never install pavers with porcelain to porcelain contact.
- The use of plate compactors is not recommended to be used on the porcelain pavers.

JOINT FILLING

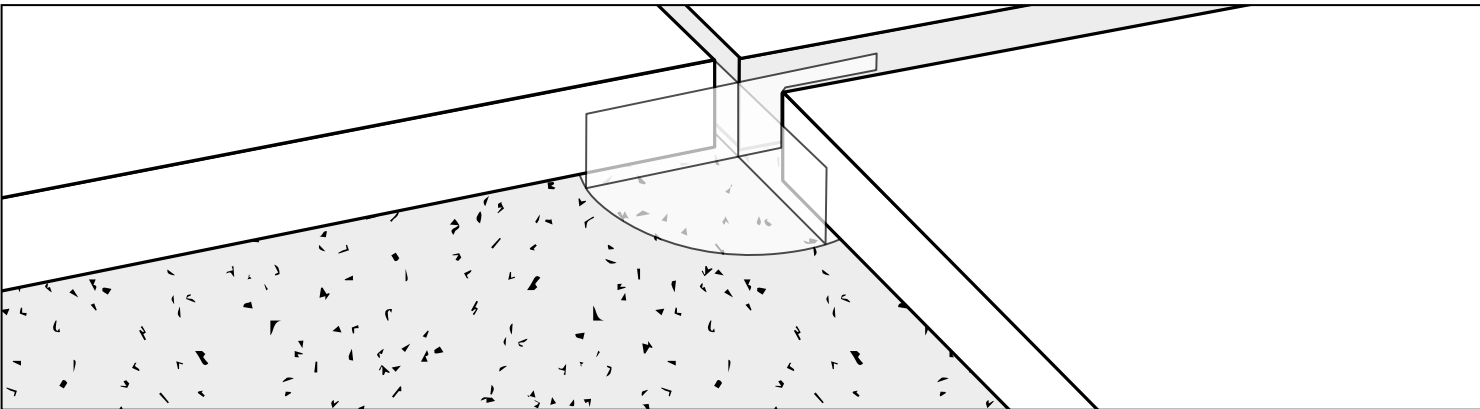
When installing porcelain paver on sand set base, fill the 4 mm (approx $\frac{3}{16}$ ") paver joints with these options:

Traditional sand

Fill the open joints with traditional dry sand until completely filled. Sweep any excess sand off the pavers. Refilling of the joints with sand may be needed in the future due to wind and rain erosion.

Polymeric sand

Polymeric sand is a blend of polymers which harden when subjected to moisture. Sweep the sand into the open joints until completely filled. All excess sand and dust must be swept from the surface. Use a blower for the final dust removal to make certain all excess sand is removed. Any residual sand or dust can result in staining of the surface. Once the filling of the joints and the cleaning of the surface is complete, mist the pavement with water which activates the polymer and cures the mixture.



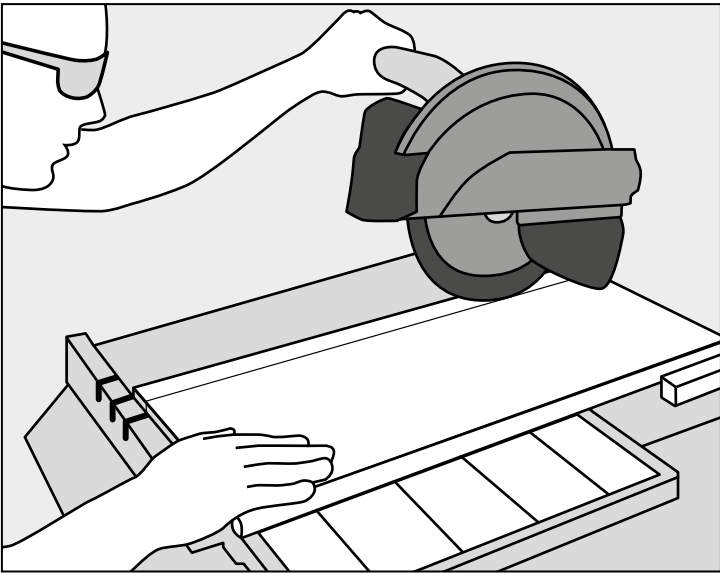
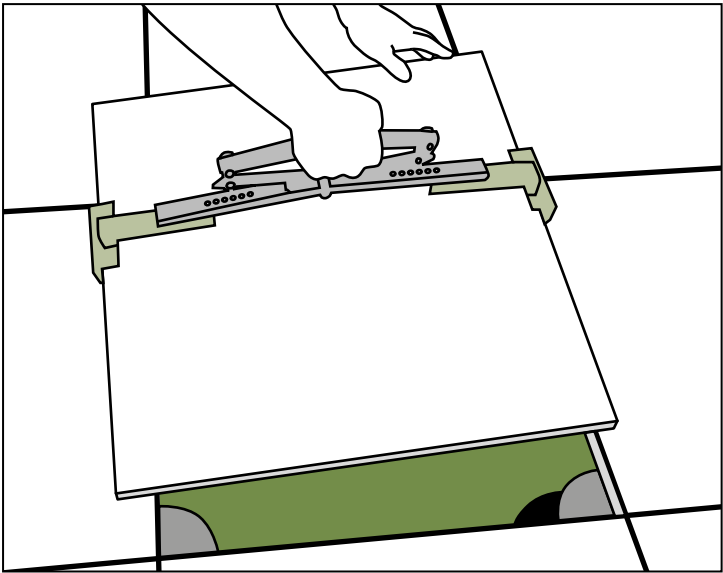
HANDLING AND SPECIALTY TOOLS.

Porcelain paver pallets are shipped with a very strong plastic covering and the individual units are packaged in protective cardboard boxes. The protective cardboard boxes guard them from the possibility of chipping.

The handling of multiple loose stones can result in damaging or chipping of the pavers. Protect any un-used boxed pavers from the elements once the plastic shipping cover is removed.

This insures the integrity of the protective cardboard boxes.

Wet cut paver saw is used to cut paver accurately and cleanly to fit around edges and corners. The saw must be equipped with a diamond blade manufactured for wet cutting porcelain and designed to safely cut a 24" (60 cm) length porcelain paver. A paver clamp to easily handle the installation and removal of pavers. Gloves are highly recommended while handling and installing porcelain slabs to protect the hands from injury. Notched trowels and grout float tools for cementitious adhesive and grout Installation. Follow the adhesive and grout manufacturer's recommendations to select the appropriate tools needed for application.



IMPORTANT NOTE: LEGAL DISCLAIMER
The nominal measurements include 4 mm (approx $\frac{3}{16}$ ") for product spacers which are sold separately. Although extreme care has been taken to ensure the accuracy of all measurements set forth herein, manufacturer assumes no liability relating thereto.

IMPORTANT NOTES:
1. Use the manufacturer's instructions when choosing polymeric sand for your project.
2. The use of cement blended sand and polymeric sand can reduce plant growth and insect infiltration within the joint infill material.
3. Whether using traditional sand or a cemented blended sand, ensure the gradation of the sand is fine enough to pass through and fill the $\frac{3}{16}$ " (4 mm) joints.

LINEAR CUT.

The videos linked below show how to properly cut thick porcelain pavers (porcelain tiles with 20 mm thickness) currently used for outdoor installations. Cutting these porcelain thick pavers is very different than cutting standard thickness tiles. The extreme hardness of the material, combined with its thickness, are the main factors that will put cutting tools to the test. Based on the experience of many professional tile installers, what often happens is that the basic blades make one or two good cuts on very thick tiles and then lose their cutting power. This causes the diamond blade to be so ruined that it can't even be recovered with common abrasive stones. Many tile and brick installers have found a first solution for this: using segmented blades to cut these thicker tiles. These are more aggressive blades that easily cut this type of ceramics leaving though a very poor cutting finish. There is then the need to spend time after each cut to finish the cut edge of the tile, especially if it is going to be laid in a position that leaves that edge visible after installation. It is important that the cut is made using a professional wet saw cutting machine and that it is made by pushing (or pulling, depending on how the cutting saw is built) the blade parallel to the plane from the beginning of the cut, applying a horizontal force (figure 1 and 2) to the trolley while avoiding to push (or pull) with excessive force. **Please note that the cut has to be performed at once with one passage. It is very important to pull down the blade without touching the tile and then pull/push the disc to cut the entire paver all at once.**

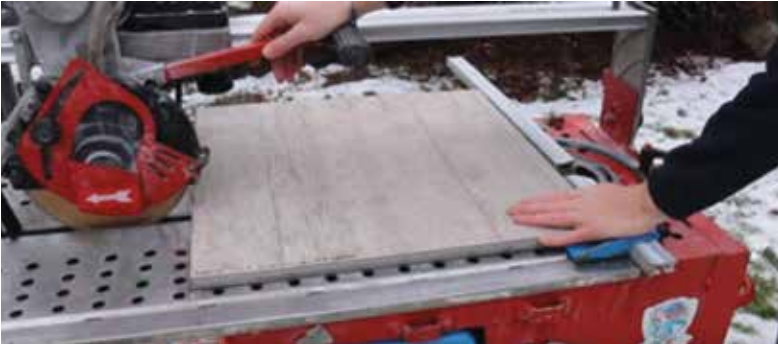


FIGURE 1



FIGURE 2

It is not recommended (figure 3) to carry out the cut by applying a force perpendicular to the side of the cutting plane (basically pushing down the saw into the tile). In fact, performing a vertical cut could affect the internal tensions of the product and lead to tile breakage.



FIGURE 3

Another cutting method consists in making a groove about 2 / 3mm deep (figure 4) by applying a very light force perpendicular to the paver surface first and then making the final cut at once with one passage, as above reported in figure 1 and 2.



FIGURE 4

In both cases, it is always recommended to use high quality disc blades and to perform the revitalization operations of the latter whenever necessary to achieve a proper cut. Landmark Ceramics recommends using a high quality blade specific for porcelain and revive it often. By using a low quality blade, or a blade not specifically made for porcelain, it might need to be revived 2 or even 3 times during the same cut. This can lead to extra costs related to the use of many diamond abrasive stones or, even worse, it can significantly increase the likelihood of breaking the paver during the cutting process. During cutting, Landmark Ceramics always recommends the use of abundant water before, during, and after the cutting phases to minimize the presence or dispersion of ceramic powder and to cool down the blade. Once the cut has been completed, Landmark Ceramics recommends to clean the newly cut surface with water, in order to remove all the dust from the paver created by the cutting operation.

Please find below some links to videos of 20 mm porcelain pavers cutting:
https://www.youtube.com/watch?time_continue=2&v=rCK48yu8qV4
https://www.youtube.com/watch?time_continue=3&v=A231KShJnww
<https://www.youtube.com/watch?v=G6FVJz08ajA>
<https://www.youtube.com/watch?v=FSMNtwxiLRI>

DRILLING HOLES WITH CORE BITS.

The creation of holes in traditional 9 / 10mm thick porcelain tile is a common practice, but it is very delicate and requires experience and technique. This is even more true for 20mm thick porcelain paver, being this particular tile thicker and more resistant. To carry out this specific cut, it is recommended to use drills or grinders together with high quality core bits for porcelain tile and paver. The use of low quality core bits could cause numerous breakages, together with an extremely accelerated wear of the tool due to the resistance of the 20mm porcelain stoneware. First of all, it is suggested to place the tile on a rigid support that absorbs the vibrations generated by the work (for example a panel of wood or regenerated rubber on a wooden panel).

After positioning the drill with the core bit in the desired position (remember to check that the drill is not in hammer mode) it is crucial to mark the exact point with a pencil, then proceed to place the core bit by tilting it slightly on the paver (**figure 5**).



FIGURE 5



FIGURE 6

Do not place the core bit perpendicularly (**figure 6**) to the paver surface as it could lead to the breakage of the paver itself.

Once the core bit is in place and already moving, gently (and without pushing too much) make a continual and constant oscillatory movement until the hole from top to bottom thorough the paver is complete (**figure 5**). Landmark Ceramics recommendation is to use a high quality core bit specific for porcelain. By using a low quality core bit, or a core bit not specific for porcelain, the likelihood of breaking the paver during drilling operation could increase. During drilling, Landmark Ceramics always recommends the use of abundant water before, during, and after the drilling phase to minimize the presence or dispersion of ceramic powder and to cool down the cutter. Once the hole has been made, Landmark Ceramics recommends to clean the hole with water, in order to remove all the dust from the surface of the paver created by the drilling. It is also possible, whenever needed, to adjust the shape of the hole created with specific tools that soften the cut made by milling eventual sharp/irregular edges of the hole. These tools are always made with artificial diamonds and should be specific for porcelain tiles and pavers.

Please find below a link to a video of 20 mm porcelain pavers drilling:
<https://www.youtube.com/watch?v=SVwzk894qdl>

GENERAL RECOMMENDATIONS.

Landmark Ceramics recommends using high quality tools and blades, specifically designed for porcelain. This is because 20mm thick porcelain is very strong and compact and does not behave, during cutting and drilling operations, like traditional thickness porcelain. During cutting and/or drilling, Landmark Ceramics always recommends the use of abundant water before, during and after the drilling phases to minimize the presence or dispersion of ceramic powder and to cool the blade/core bit. Landmark Ceramics also recommends to use certified wet or suction tools to reduce and minimize the dispersion of ceramic powder. Once the necessary operations are finished, it is very important to clean the surface of the tile from the dust to prevent it from being trapped by the filler needed for the joints.

Landmark Ceramics always recommends the use of safety glasses, mask, gloves and steel toe shoes.

CLEANING INFORMATION

FOR PORCELAIN PAVERS INSTALLED OVER CONCRETE

FIRST FLOOR DEEP CLEANING AFTER INSTALLATION OVER CONCRETE

After Grouting the Joints (pic. 1) It is important to remove the excess grout with a sponge and clear water (pic. 2). After 12/48 hours, the grout in the joints will have “set up” /hardened significantly. There will be a noticeable residual “haze”. Typically, a diluted acid cleaner specifically for removing “Grout Haze”, combined with a soft scrubbing pad will remove the majority if not all the “Haze”. Change your acid/water solution frequently for best results. It is also recommended to keep a bucket of clean water to remove the acid/water solution. It is recommended to keep and use clean dry towels to help remove as much residual water and keep the floor as dry as possible.

Please refer to the cleaning chemical company’s suggested methods and dilution rates. (pic. 3). For areas with excess grout or grout that becomes adhered to the face of the tile, further cleaning with an Acid/ Water Solution may be necessary. Please refer to the Cleaning Chemical Company’s instructions as not all acids or chemicals are the same.

The excess grout residue (pic. 4-5) must be removed so that it does not dry and stick on the surface. It is necessary to change the cleaning water frequently and rinse well. Care must be taken on inlayed, polished and especially Anti Slip products similar to Frontier20. The use of a floor-washing machine combined with the use of a diluted acid detergent helps reach the spaces between adjacent tiles and clean them properly. If such a cleaning procedure is not carried out, or if such cleaning is carried out too late, the grout residue creates an absorbent film, which holds dirt, making the surface difficult to clean: in this case, Landmark Ceramics will not be liable for any damage caused to the surface.

ORDINARY CLEANING

Ordinary maintenance must be carried out using specialized detergents to remove stains but these detergents must not leave a wax, film or membrane residue. Rinsing well with plenty of clean water is a fundamental part of the cleaning procedure, therefore we advise against the use of products which state that they “do not need rinsing”.

OTHER RECOMMENDATIONS

Bright colored products, in particular white and extra-white tiles, are very delicate and, although for all intent and purpose are hygienically clean, However, they can get dirty more easily than darker tiles. It is therefore necessary to remember that these particular products require careful regular maintenance. Sealers are unnecessary, especially in the case of our **Frontier20** Product line. Sealing will change the D.C.O.F. (Dynamic Co-efficient of Friction) resulting in a surface that will become more slippery. Also because Porcelain has such a low absorption the sealer will unlikely stick and most likely the sealer will flake off over time.



PIC 1. Fill joint with grout.



PIC 2. Remove excess grout with clean water.



PIC 3. Add specific acid cleaning agent for porcelain tile to clean water.



PIC 4. First floor deep cleaning after 12/48 h from installation.



PIC 5. Removal of excess grout residues with hard brush.

CLEANING AGENTS

TYPE OF STAIN	SOLUTION	DETERGENTS	MANUFACTURER
INORGANIC STAINS			
Cement Carbon Calcium Efflorescence Chalk Metallic residues Rust Cement-based grout Colored grout Wall paint	Acid	DETERGENT WITH AN ACID BASIS *	
		DETERDEK or similar	UNITED STATES > Fila Chemicals USA, Corp.10800 N.W. 21st Street #170 Miami, FL 33172 USA Tel. +1-305-513-0708 email filausa@filasolutions.com
		KERANET (liquid) or similar	MAPEI Americas Headquarters 1144 E. Newport Center Drive Deerfield Beach, Florida 33442
ORGANIC STAINS			
Coca Cola Ice Cream Coffee Wine Beer Animal fats Vegetable fats Mustard Mayonnaise Ketchup Jam Linseed oil Lipstick Wax	Alkaline and neutral	LIMITED FOAM TYPE PRODUCT **	
		PS87 or similar	UNITED STATES > Fila Chemicals USA, Corp.10800 N.W. 21st Street #170 Miami, FL 33172 USA Tel. +1-305-513-0708 email filausa@filasolutions.com
		FILACLEANER or similar	UNITED STATES > Fila Chemicals USA, Corp.10800 N.W. 21st Street #170 Miami, FL 33172 USA Tel. +1-305-513-0708 email filausa@filasolutions.com
		Ammonium	Universal
RESIDUAL RINGS of organic nature	Saline solution	Sodium hypochloride (bleach for white laundry)	Universal
Silicone oils Machine Oil Resins and glazes Coal and natural rubber Encres et feutres		FILASOLV or similar	UNITED STATES > Fila Chemicals USA, Corp.10800 N.W. 21st Street #170 Miami, FL 33172 USA Tel. +1-305-513-0708 email filausa@filasolutions.com
		Aceton	Universal
		NITRO - THINNER	Universal
		TURPENTINE	Universal
		TRICHLORETHYLENE	Universal
Tire		CIF AMMONIACAL	Universal
		HAND CLEANSER	Universal
Silicone and chewin-gum		Ice+scraper	

N.B. When using the above products, the instructions on the package should be followed.

* **Detergent with an acid base:** a detergent with an acid basis, specifically recommended after bath floor or wall installation, for the decalcioficant cleaning and the regular maintenance.

** **Limited foam type product:** a limited foam type product degreasing and general cleaning, suitable for all types of stains but especially for remove of vegetable and animals fats.

PERFORMANCE COMPARISON PORCELAIN PAVERS VS. COMPETITOR OUTDOOR PAVING MATERIALS

FEATURES	LANDMARK FRONTIER20 PORCELAIN PAVERS	WOOD PAVERS	CLAY BRICK	CIP (CAST IN PLACE) CONCRETE	CONCRETE PAVERS	NATURAL STONE
Stainable	No	Yes	Yes (Highly)	Yes	Yes	Yes (Highly)
Freeze Thaw Proof	Yes	No	No	No	No	No
Salt Resistant	Yes	No	Salt Will Degrade	No	No	No
Acid Resistant	Yes	No	Acid Will Burn	No	No	No
Scratch Resistant	Highly	No	Somewhat	No	No	No
Moisture Absorption	< 0,5%	Highly Varried	5%	5%	5-10%	>= 5%
Easy To Repair	Yes	Yes	No	Can Not	No	No
Uv Resistant	Unaffected	No	Yes	If Sealed	Yes/No	Unaffected
Needs Sealed	Never	Yes	Recommended	Recommended	Recommended	Recommended
Pressure Washer Safe	> 1500 PSI	No	Not Recommended	> 1500 PSI	No	No
Environmentally Friendly	Facility 98% Green	Many Exotic Rainforest Species	No	Large Carbon Foot Print	Possible Fly Ash Content	Mined Or Imported
Recycled Content	20% In Each Paver	No	Not Possible	Not Possible	If Possible Less Than 5%	Not Possible

PHYSICAL PROPERTIES		TEST ASTM	NORTH AMERICAN STANDARD A137.1*	RESULTS
	Water absorption *	C373	≤ 0.5%	COMPLY WITH ANSI A137.1
	DCOF Average dynamic coefficient of friction **	BOT 3000 test	≥ 0.42	≥ 0.42
	Skid Resistance	DIN 51097	-	A+B+C
		DIN 51130		R11
	Resistance to freeze/thaw cycling *	C1026	As reported	RESISTANT
	Resistance to thermal shock	C484	As reported	RESISTANT
	Warpage (edge)	C485	Warpage ± 0.4% or ± 0.05 in	COMPLY WITH ANSI A137.1
	Warpage (diagonal)	C485	Warpage ± 0.4% or ± 0.07 in	COMPLY WITH ANSI A137.1
	Wedging	C502	± 0.25% or ± 0.03 in	COMPLY WITH ANSI A137.1
	Chemical resistance	C650	As reported	UNAFFECTED
	Resistance to stain	C1378	As reported	UNAFFECTED
	Thickness	C499	Range: 0.04 in	COMPLY WITH ANSI A137.1
	Breaking strength	C648	250 lbf or greater	≥2200 lbf

* Average values referred to our production and related to the matt finish of the product.

** As far as values relating to the matt finish of the product and to tests carried out by certified external laboratories whose results are available upon request at Headoffice, we are willing to check the lot you are interested in purchasing.

- Be sure to use pavers belonging to the same caliber.

- Test results are available on request.

- The information provided can be subject to change. Please refer to <https://hardscape.landmarkceramics.com> for the latest, most accurate and up-to-date information.

WARNINGS.

- Outdoor pavings installed unglued above the ground level are subject to the action of the wind, with the risk, in some cases, of becoming airborne.The manufacturer recommends to require the assistance of a qualified professional in order to check the suitability of the installation system above the ground adopted, in accordance with the local laws and regulations and the conditions of use. Failure to do so could result in serious injury or property damage.
- If the application of the 20 mm slabs requires the ceramic product used in structural installations, the project engineer and/or customer must carefully assess the project requirements with regard to the technical specifications of the slabs. to prevent the risk of damage or injury, the manufacturer recommends: with regard to a raised floor installation a ceramic slab may fracture on impact if a heavy object falls on it from any significant height. therefore the manufacturer recommends to check the specific intended use before starting the installation and to follow table for raised installation provided below. in certain conditions, reinforcing must be applied on the back of the slabs (double fiberglass mesh) supplied and applied by the manufacturer; with reference to any dry installation system of flooring above the ground level, the manufacturer recommends to comply with local regulations and conditions of use with regard to wind-load, loadbearing, seismic events, etc. Failure to comply with these recommendations may lead to improper use of the product and could cause serious damage or injury. Failure to adhere to the manufacturer's instructions for installation of slabs on raised pedestal systems may result in serious injury.
- For further information and recommendations concerning the installation systems please refer to <https://hardscape.landmarkceramics.com> website.





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