



Recommendations, Warnings & Disclaimers

1. **RECOMMENDED USE OF PORCELAIN TILES, PAVERS, BRICKS AND VENEERS.**

Failure to comply with any of the below recommended uses will result in the Warranty provided herein becoming null and void.

RECOMMENDED USE FOR MATT FINISH PORCELAIN TILES (ALL COLLECTIONS)

These products are recommended for indoor floors, walls, countertops, and outdoor walls in commercial and residential application. The use of these products is not recommended for horizontal exterior surfaces that require anti-slip features. Landmark recommends an offset no greater than 30% if a staggered pattern is required for tiles of 20” inches or longer. Visit lcusa.com for detailed instructions of installation.

RECOMMENDED USE FOR GRIP FINISH PORCELAIN TILES (ALL COLLECTIONS)

These products are recommended for indoor and outdoor floors and walls, in commercial and residential application, especially where anti-slip features are required. Landmark recommends an offset no greater than 30%, if a staggered pattern is required for tiles of 20” inches or longer. Visit <https://outdoor.landmarkceramics.com> for detailed instructions of installation.

RECOMMENDED USE LUX FINISH PORCELAIN TILES (ALL COLLECTIONS)

These products are recommended for indoor floors, walls, countertops, and outdoor walls in commercial and residential application. The use of these products is not recommended for horizontal exterior surfaces that require anti-slip features. We do recommend not using the honed and Lux finish for wet areas where deposits of water are likely to occur. Landmark recommends an offset no greater than 30% if a staggered pattern is required for tiles of 20” inches or longer. Visit lcusa.com for detailed instructions of installation.

RECOMMENDED USE FOR 20 MM THICK PORCELAIN PAVERS (ALL COLLECTIONS)

These products are recommended for indoor floors, walls, countertops, and outdoor floor and walls in commercial and residential application. Landmark recommends an offset no greater than 30%, if a staggered pattern is required for tiles of 20” inches or longer. Visit lcusa.com for detailed instructions of installation.



RECOMMENDED USE FOR PORCELAIN VENEERS

Porcelain Veneers are recommended for indoor and outdoor walls, in commercial and residential application. Landmark recommends an offset no greater than 30% if a staggered pattern is required for tiles of 20" inches or longer. Landmark recommends the use of leveler for a proper installation.

RECOMMENDED USE FOR PORCELAIN BRICKS

Porcelain bricks are recommended for indoor floors, walls, countertops, and outdoor walls in commercial and residential application. The use of porcelain bricks is not recommended for outdoor flooring application. Landmark recommends an offset no greater than 30% If a staggered pattern is required for tiles of 20" inches or longer.

2. PORCELAIN PRODUCTS CARE AND MAINTENANCE

Do not apply any wax or sealer to the product after installation. Before grouting ensure that you apply a grout release when using honed or lux finish. Regular cleaning is the best way to keep honed or Lux tiles looking good. Use clean, hot water (add household cleaner for more aggressive cleaning). Rinse thoroughly and dry with a soft cloth to prevent water spots. Please visit lcusa.com for further information regarding the care and maintenance of Landmark products. The use of the Lux finish is limited to wall cladding and floor application in residential venues and in spaces subject to low footfall, avoiding the direct contact with outdoor areas which require anti-slip features.

After any thin set installation of porcelain tile and pavers over concrete, best practices require an acid deep cleaning after grouting. For more information on how to perform a correct first cleaning after grouting, as well as on the right cleaning products to use, and ordinary maintenance of porcelain tiles and pavers once installed, we strongly recommend referring to Landmark's cleaning guide found in the resource section of our outdoor website at <https://outdoor.landmarkceramics.com/>. Similar information can also be found below.

Failing to follow these instructions could lead to maintenance issues, most of the times derived from grout residue left on the surface of the tiles/pavers which creates a film on the tile/paver surface that tends to retain dirt. If that occurs, the only possible solution is to perform a deep floor cleaning, using acid-based cleaners specific for porcelain and following the specific cleaning procedure described below.

Please note that, from time to time, depending on the type (cement-based vs epoxy), quantity, and aging of the grout residue left on the tile/pavers surface, it could be hard or even impossible to fully remove all grout which is why Landmark highly suggests a first acid deep cleaning right after installing and grouting the tiles/pavers.

First floor deep cleaning after installation

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 inlaid, 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.



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.

Ordinary cleaning

After the first deep cleaning (described above) is complete, ordinary cleaning will be necessary based on traffic and use of the floor. We strongly advise against the use of waxes, oily soaps, impregnating products and treatments (water and oil repellent) on the porcelain stoneware product, as their application is unnecessary. Many off the shelf detergents contain waxes and gloss-inducing additives which, after various washes, can deposit a bright coat on the floor.”.

For films left by soap, lime scale, dirt, use an acid detergent, suitably diluted in water (read the product instructions carefully). It is also important to point out that Hydrofluoric acid (HF) and its derivatives can irredeemably damage porcelain stoneware. For routine cleaning, Landmark recommends the use of bleach or ammonia, suitably diluted in water; for polished porcelain stoneware, dry the floor after washing to prevent unsightly smudges. **TIP: Since rinsing well with plenty of clean water is a fundamental part of the day-to-day cleaning procedure, Landmark advises against the use of products which state that they “do not need rinsing”**

Extraordinary Cleaning

In the case of particularly stubborn stains, we recommend using specific detergents such as those indicated in chart below. The removal of any type of stain is easier when the stain is still fresh. It is always important to test the detergents on a small area before applying to the entire surface, particularly in the case of porcelain stoneware with a lapped or polished finish.

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
		FILA CLEANER 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
		TRICHLOROETHYLENE	Universal
		CIF AMMONIACAL	Universal
		HAND CLEANSER	Universal
Tire		Ice+scraper	
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 decalcific 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.

Floor deep cleaning recommendations to be used in case of grout residues left on tile/pavers surface

1. Preliminary Cleaning Procedure: It is important to clean the floor with a traditional detergent (Some examples of suitable detergents you can consider are Deterdek from Fila, Keranet from Mapei) and rinse thoroughly in order to remove any dirt that is present on the tile/pavers aside from the grout left on them. This should be done carefully by following these steps:

- i. Clean the floor with water to remove dust and residue;
- ii. Apply an abundant quantity of detergent to clean the floor, following instructions provided on the detergent's bottle and making sure that, during the entire cleaning process, the detergent does not get in contact with grass or water of nearby swimming pools (if any);
- iii. Brush strongly to remove the dirt (using a scotch-brite, ideally a motor-brush with scotch-brite for big surfaces);
- iv. Rinse well with running water (it is recommend to use a vacuum cleaner to avoid burning the grass); and
- v. Once well rinsed, dry the surface.

2. Acidic Cleaning Procedure: Perform the acid cleaning procedure as indicated in the guide provided in the link above, hereunder summarized:

- i. Apply a professional acidic cleaner for grout haze on the floor. Some examples of suitable acidic cleaners you can consider are DETERDEK from Fila, KERANET from Mapei;
- ii. Apply an abundant quantity of acidic cleaner on the entire floor, following instructions provided on the cleaner's bottle (for a better result, do not dilute with water), and making sure that, during the entire cleaning process, the cleaner (since it is an acid-based cleaner) does not get in contact with grass or water of nearby swimming pools (if any);
- iii. Once applied, leave the product on the floor for about 20-30 minutes;
- iv. Brush strongly to remove the dirt (using a scotch brite, ideally a motor-brush with scotch brite for big surfaces). It is very important to apply a strong and prolonged mechanical action (tile by tile) on the floor while brushing. Please note that cleaning without a strong mechanical action (e.g. cleaning using a simple mop) is going to be useless and ineffective;
- v. Rinse the floor, making sure everything is absorbed, so that nothing will get in contact with grass or swimming pool water;
- vi. Repeat ""as necessary to achieve the desired result
- vii. Dry the floor's surface

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. For the same reason, always on bright colored products, it is very important to make sure that the first deep cleaning procedure after installation on concrete is performed in a particularly careful manner, strictly adhering to the instructions above and using proper tools and

cleaning products. As explained above, failure to do so could lead to a situation where the grout residue creates an absorbent film, which holds dirt, making the surface difficult to clean. And due to the natural bright color of the product, the grout residue could be particularly visible. In this case, Landmark will not be liable for any damage caused to the surface.

Please note that if the grouting was done well before the time of attempted cleaning, the grout residue left on the tile surface would have had time to settle and mature. In this case:

- It is particularly important, during the acid cleaning process, to let the acid settle in on the floor for a few minutes before brushing, so that the acid can soften the grout.
- It is also crucial to brush the tiles using the right tools and to apply on the floor a strong and prolonged mechanical action (tile by tile).
- It is very likely that a single deep acid cleaning will not be sufficient. In this case, it will be necessary to repeat the operation several times to eliminate all the grout residue. Keep in mind that the grout residue might not be immediately visible when the floor is clean, but can only be seen when the grout gets dirty. Therefore, even if the floor may appear clean after the first deep cleaning process, it could still have grout residue left on the surface of tile/pavers, that will get visible once they'll get dirty again. If that is the case, it will be necessary to repeat the deep cleaning procedure more than once until reaching a satisfactory result.

While performing the deep cleaning process, please be aware of any surrounding grass (making sure that the acid cleaner does not come into contact with it). If a deep cleaning is needed around a pool, make sure that during the entire cleaning process the acid cleaner does not get in contact with the water of the swimming pool.

Never use sealers of any kind on the surface of the porcelain tiles and pavers. Sealers are unnecessary and, furthermore, sealing will change the D.C.O.F. (Dynamic Co-efficient of Friction) of the pavers, resulting in a surface that will become more slippery. Furthermore, since Porcelain has such a low absorption rate, the sealer is unlikely to stick and will most likely come off over time.

We also recommend avoiding using of any kind of coating (including but not limited to anti-slip coatings) on our Frontier20 porcelain pavers. In addition to being unnecessary, coating could change the surface properties of the pavers, making it more difficult to clean or to maintain. Coating will also alter the D.C.O.F. (Dynamic Co-efficient of Friction) resulting in a surface that could become more slippery. Further, because Porcelain has such a low absorption rate the coating will be unlikely to stick and will flake off over time.

Warnings

The above suggestions are a result of research, laboratory tests and several years' experience. However, the cleaning features of the materials may vary significantly according to the different installation methods, conditions of use, types of surface and destination. As a general rule, the higher the anti-slip values of the tiles are, the greater cleaning inconveniences may arise. The

professional operator in charge of maintenance and cleaning shall always check the surface condition before proceeding with any cleaning and/or maintenance operation (we would suggest to test some tiles before installation). Landmark Ceramics declines any liability with reference to cleaning and maintenance operations in case of heavy conditions of use (such as mechanical workshop or spaces presenting oily residues or tire marks), bad installation work or wrong cleaning operations. It is agreed that Landmark Ceramics shall not be liable for any event, damage or defect due to wrong installation of the tiles, faulty cleaning and maintenance operations or inadequate choice of the type of material to be laid or of the adhesives used in a certain destination of use.

3. **PORCELAIN PAVERS: ADDITIONAL RECOMMENDATIONS FOR THE INSTALLATION, ORDINARY CLEANING AND MAINTENANCE.**

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 favor 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 localized 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.

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 lay the standard base thickness to install porcelain pavers for the needs of the area. When installing porcelain pavers, the bedding coarse 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 3/16" (4mm) spacers, or 1/4" (6mm) spacers for modular patterns, must always be used to install pavers on sand set and permeable installations.
- Never install pavers with porcelain-to-porcelain contact.
- The use of plate compactors is not recommended to be used on the porcelain pavers.

4. PORCELAIN PAVERS JOINT FILLING.

When installing porcelain paver on sand set base, fill the paver joints with one of 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.

5. PORCELAIN PAVERS 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 ensures 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.

6. PORCELAIN PAVERS RAISED FLOORS INSTALLATION SYSTEMS: WARNINGS.

Landmark products are made using the best technology available, and their technical performances match or exceed requirements from both ASTM and ISO standards for porcelain products. Nevertheless, 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:

- In a raised floor installation, it is important to note that, even though porcelain is an extremely hard and compact material, the ceramic slab is not bonded to the ground, but laid on raised pedestals. Since the ceramic slab is a hard, not elastic material, it could break for

various reasons (such as, but not limited to, a heavy object falling on the paver, heavy equipment/machinery operated improperly, etc.). Therefore, the manufacturer recommends checking the specific intended use before starting the installation and:

- Comply with the table for raised installation provided below.
- In all installations on pedestals higher than 3/4", reinforcing must be applied on the back of the slabs (double fiberglass mesh) which must be ordered through Landmark and which will be applied prior to shipment of the goods.
- If a Buyer, customer, or end user decides to use another anti-collapse solution other than double fiberglass mesh among those available in the market (including any double fiberglass mesh not applied by Landmark), Landmark specifically disclaims, and Buyer agrees, that Landmark shall not have any responsibility for damage to the product, objects, or persons caused by the breakage of any of pavers. Additionally, if a Landmark-supplied backing solution is not used on raised installations, Landmark disclaims, and Buyer agrees, that Landmark shall not have any responsibility for damage to the product, objects, or persons caused by the breakage of any pavers.

SUPPORTS REQUIREMENTS			
	SIZE	UP TO 3/4" (20MM)	ABOVE 3/4" (20MM)
	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

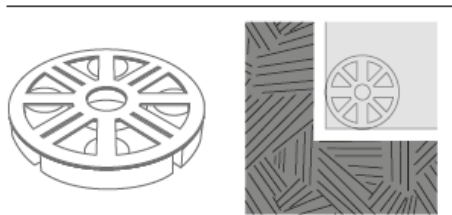
- For any dry installation system of flooring above the ground level, Landmark recommends compliance with local regulations and conditions of use regarding wind-load, loadbearing, seismic events, etc. Outdoor paving solutions installed unglued above the ground level are subject to the action of the wind, with the risk, in some cases, of becoming airborne. Landmark recommends using a qualified professional to check the suitability of any above

ground installation system 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, for which Landmark shall have no liability.

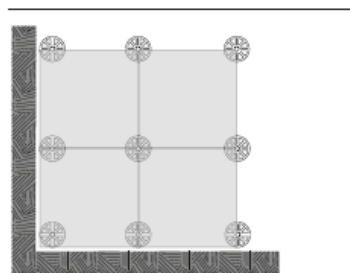
- Installations must be completed onto a solid, water-resistant substrate with the correct slope to guarantee water drainage.
- Supports come equipped with four spacers that allow for the creation of grout lines between pavers. For a correct installation against walls or corners, it is necessary to keep the supports distant from the wall and remove 2 or 4 spacers as showed in the picture below. Landmark Ceramics recommends to strictly follow the instructions for the raised installation of Frontier20. Failure to comply with these recommendations may lead to improper use of the product and could cause serious property damage or injury. Additionally, failure to comply with these recommendations will result in the Warranty provided herein becoming null and void.

For further information and recommendations concerning the installation systems please refer to our website at <https://outdoor.landmarkceramics.com/installation-pavers.php> or <https://outdoor.landmarkceramics.com>.

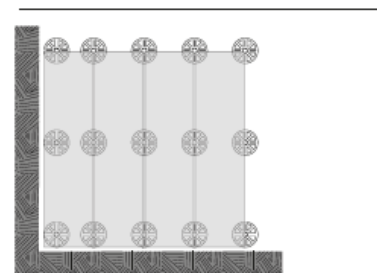
Wall corner



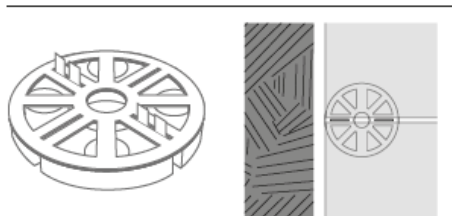
24"x24" - 12"x24" - 12"x12"



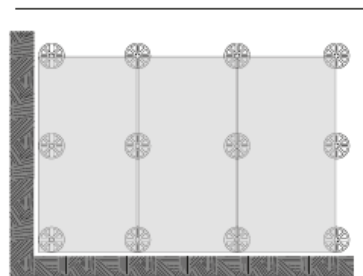
12"x48"



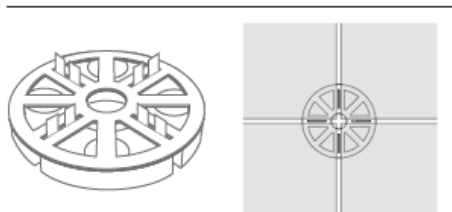
Wall border



24"x48"



Floor center



All information provided in this document is subject to change. Please refer to our websites (<https://www.lcusa.com> and <https://outdoor.landmarkceramics.com>) for the latest, most accurate and up-to-date information.

24. COVE BASE AND BULLNOSE SHADE MATCHING WITH FIELD TILES

Regarding the use of Cove base (hereinafter referred to as “CB”) and Bullnose (hereinafter referred to as “BN”), it is extremely important to understand the following:

1. CB and BN are special pieces intended for the wall basal use only and are meant to protect the wall from water, chemicals and dirt during the cleaning activities.
2. The main difference between BN and CB is that the second one is able to transition from the floor to the wall with a rounded connection edge that allows a better cleaning action in correspondence of the contact point between wall and floor. They both have a rounded miter cut on the upper side and not a straight cut. The rounded corner is meant to be the last ceramic bit before the plain wall (not covered by tiles) begins, and it is rounded for both esthetic reasons and easier cleaning.
3. Given the use for which they have been studied BN and CB are usually never toned in association with field tiles for two main reason:
 - a. BN and CB are installed vertically, unlike the floor that is horizontal, and hence due to the different refraction of the light their tones will appear different anyways. Consequently, it has no relevance if the tone of the tile used on the floor and the tone of the BN and CB can be combined or not. Once installed, they will look as two different tones.
 - b. The CB is made with different equipment and raw materials from the field tiles so that the shades are even more unlikely to match. The BN may have an easier combination as it is cut down directly from the field tile, but being used vertically the light refraction will still make them appear different.
4. Both the CB and BN are not designed to joint together ceramic covered floors and walls, and that is why the upper side is rounded and not straight. Landmark Ceramics recommends NOT to use the CB nor BN, wherever a ceramic covered wall is needed above them.
5. For the above said reasons Landmark cannot be held responsible for problems related to the tone mismatching between the aforementioned BC and CB and the relative field tiles, for which an improper use becomes evident.