

NEW TERRACOTTA  
— PORTUGUESE HANDMADE —

# **NATURAL COTTO**

Technical Guide

2<sup>nd</sup> Edition 2020

Please note these tips are guides only and should be used in addition to the relevant industry standards for cotto tiles. Note that installation may vary from site to site with varying conditions experienced on site (i.e. soil conditions, pool surrounds, driveways, wet areas etc.). The contractor and specifier should decide if these suggestions are suitable for their application or require further adjustment.

## TILE UNDERSTANDING

New Terracotta produces handmade cotto tiles according to ancient traditions. It is important to understand that the differences in colour, shape, size, texture and moisture absorption are the unique characteristics that distinguish each of these tiles.

### Size and Length Variation

Our tiles shrink during the production process.  
You can expect some variation, especially on longer tiles.

### Lengthwise Bowing and Surface Undulation

Clay is an elastic material; therefore it will attempt to regain its original shape as it moves through the production process. For this reason, you can expect both an acceptable amount of lengthwise bowing and a surface undulation. Undulation can occur anywhere on the surface and could include a slightly raised corner or edge.

### Shade Variation

Shade variation is inherent in all fired ceramic products and certain tiles will show greater variation within their fired lots.

### Efflorescence

The term efflorescence means the migration of salts to the surface of the cotto tiles.  
Efflorescence originates from the terracotta itself, from the ground, concrete, polluted rain or by poorly executed acid washes. Since the clay we use is 100 % natural, different efflorescence is likely to appear after the laying process.  
In order to remove efflorescence, possible remains of sand and stucco smears, a floor washing is needed before any kind of floor treatment. The washing is made through a specific buffered acid followed by a rinse with clean water.

## TILE PREPARATION

Meticulously plan your layout. The time you take for preparation and placement will greatly impact the finished result.

- Pre-sort your tile by shade and size so you can distribute the range of variation throughout the installation.
- Blending is recommended.
- Inspect each tile deformities that make its use inappropriate for the application intended.
- Both sides of the tiles should be wipe clean of any dust before installation.
- The tiles can be cut using a diamond-blade (ideally a water-cooled machine).

## TILE LAYING

The laying of New Terracotta cotto can be carried out with many patterns also by mixing different formats, using a mixture of sand and cement screed, dusted with wet cement or by using adhesive, a more reliable and simple method. The most recent developments in technology in the field of adhesives offer biocompatible materials, excellent for combining with our organic products.

### Slope — Laying Outdoors

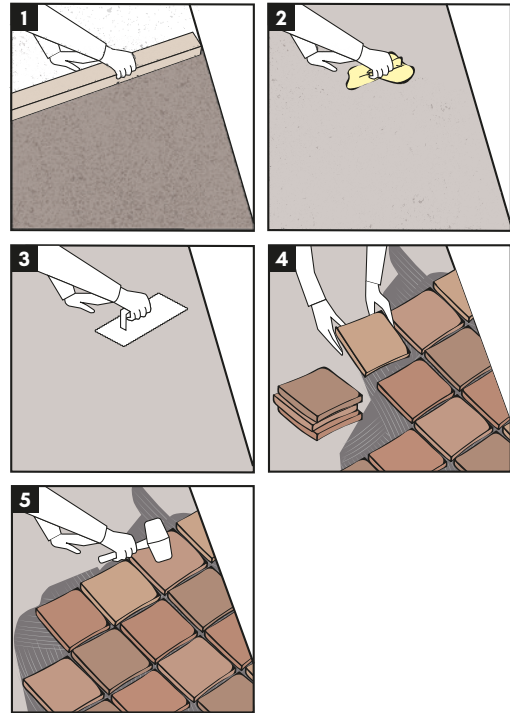
For laying outdoors we recommend to keep the correct slope to prevent water stagnation.

When dealing with outdoor flooring, special attention must be paid during planning in order to respond adequately to rainwater run-off. This is done by dividing the floor field into different drainage surfaces, giving them effective slope and perfect levelness.

This will avoid trapping water and moisture on the floor surface since they cause undesirable and unsightly effects due to rings, saltpetre efflorescence and dirt build up.

## Laying General Methods:

- 1. Prepare a sub floor** (screed) that is perfectly flat to make it easy to keep the cotto tiles leveled with each other (therefore offering the necessary laying tolerances).
- 2. Clean the laying surface** (remove debris, dust, oil, etc), once the screed is completely dry.
- 3. Prepare a uniform layer of adhesive** (8 to 10 mm thick) using a notch trowel and back butter the base of the tile as well.
- 4. Lay the cotto tiles** so the timing corresponds to the drying time required for the adhesive used.
- 5. Compact the cotto tiles** evenly on the adhesive with a rubber mallet to ensure consistent contact. Consistent open joints should be allowed for at 4 to 6 mm spacing.



## TILE SURFACE PREPARATION BEFORE SEALING AND GROUTING

Once the adhesive dry, clean the surface by scrubbing it using a neutral detergent diluted with water. It will remove any dust and dirt that may have accumulated during the installation process.

Rinse thoroughly with clean water and leave to dry.

Tiles should then be allowed to set for 48 hours before applying sealant and grout.

## TILE SEALING BEFORE GROUTING

An impregnating sealing is an essential step in protecting the beauty and ensuring the longevity of cotto tiles, as it accentuates the inherent clay colour and helps to protect against fading and staining.

The sealant is a solvent based liquid that limits water and oil penetration. It impregnates the tile, protects it and keeps its natural matt aspect.

New Terracotta prefers and recommends the use of water based products, which are more natural and chemically less invasive and are therefore in line with organic products.

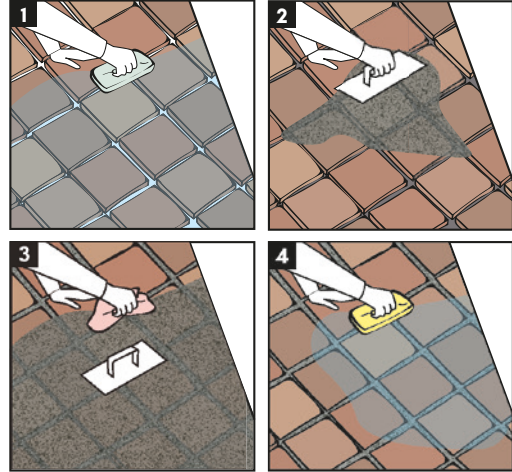
- Apply with a brush or a roller on a dry and clean surface.
- Do not apply too much. The excess would leave glistening stains on the surface (brush traces).
- Always try the sealer on a loose tile before applying it on the entire surface in order to measure the grade of absorption of the tiles.

## TILE GROUTING

It is recommended to use a high-grade pre-bagged grouting compound suitable for the application. Grout joint width can be varied to adjust tile alignment with adjacent tiles or other architectural elements.

### Grouting General Methods:

1. Dampen grout joints and tile with a sponge.
  2. Grout the joints, ensuring no voids, to the full depth of the paving tiles.
  3. Remove excess grout with a trowel. If any residue remains on the face of the tile a scouring pad or a fine-grained sandpaper can be used to gently remove it.
  4. Clean the paving surface with water, ensuring all excess grout has been removed.
- Never use acidic cleaners, strong detergents or bleach as these will damage the tiles. Stains or spots can be delicately removed with a scouring pad or fine-grained sandpaper.



## FINISHING AFTER GROUTING

The finishing completes the protection against wear and dirt. It gives the cotto tile the desired final appearance, as it revives the colours of the natural cotto.

Always apply a final coat of impregnating sealant making sure to cover the grout joints as well.

Further to the above you can also apply a surface wax or oil. This will offer extra protection and give an attractive patina.

Mostly used are natural bee waxes either liquid or paste, or specific floor oils. There are various sheens; brilliant gives a shiny appearance, matt keeps the look natural or satin gives a coating between the two.

A finishing wax or oil is not applied on external floors as it would not last long when exposed to weathering. In these situations only a water repellent or oil repellent is applied.

## MAINTENANCE


Keep the surface as free as possible of loose dust and grit with regular vacuuming or sweeping. This will reduce the sandpaper effect of dirt getting compacted into the surface and joints.

Wash the floor using a pH neutral cleaner (ideally biodegradable and environment friendly) to remove the dirt that a vacuum won't pick up and for hygiene purposes.

We strongly recommend avoiding the use of bleach based cleaners, washing-up liquids or any other acid cleaners.

The right choice of materials and installation methods is essential to the success of your installation. Some adhesives carry a warning that they may react adversely with certain types of tiles. New Terracotta recommends the using of MAPEI fixing materials and suggests contractors contact a MAPEI specialist for more information about their products.


For typical installations please consider:

| PRODUCT  | USE  | ADHESIVE                | GROUT                 |
|--|--|-------------------------|-----------------------|
|  HANDMADE NATURAL COTTO | Interior Floors + Walls<br>Interior Wet Areas<br>Exterior Floors + Walls | MAPEI Keraflex Extra S1 | MAPEI Ultracolor Plus |





## TREATMENT ANCILLARY PRODUCT




The finest New Terracotta surfaces can be kept at their beautiful best if protected carefully. New Terracotta recommends the using of MORA products and suggests clients contact a cleaning specialist for a professional consultancy.

For typical treatments please consider:

| PRODUCT  | USE                     | PROTECTOR  | FINISHER  |
|--|-------------------------|--|---|
|  HANDMADE NATURAL COTTO | Interior Floors + Wall  | MORA Fondomor Protect<br>coverage 10 m <sup>2</sup> per liter  | MORA Aceite Mate / Brillo<br>coverage 7 m <sup>2</sup> per lite |
|  | Interior Wet Areas      | MORA Fondomor Protect<br>coverage 10 m <sup>2</sup> per liter  | N/A   |
|  | Exterior Floors + Walls | MORA Morakon Intemperie<br>coverage 5 m <sup>2</sup> per liter | N/A   |

The New Terracotta technical support team is available to assist you in determining the best practice for your installation. For more information contact us.

| FIELD TILES  |                |   |            |
|--|----------------|---|------------|
| Technical Features   | Standards      | Test Results  | Compliance |
|  <b>Determination of water absorption</b>             | EN ISO 10545-3 | <u>Terra Classic</u><br>21%<br><br><u>Terra Sand</u><br>25%   | YES        |
|  <b>Determination of module of rupture</b>            | EN ISO 10545-4 | <u>Terra Classic</u><br>R = 6 N/mm <sup>2</sup><br>S = 1680 N<br><br><u>Terra Sand</u><br>R = 6 N/mm <sup>2</sup><br>S = 1590 N | YES        |
|  <b>Determination of resistance to deep abrasion</b>  | EN ISO 10545-6 | <u>Terra Classic</u><br>2137 mm <sup>3</sup><br><br><u>Terra Sand</u><br>2390 mm <sup>3</sup>                                   | YES        |
|  <b>Determination of slip resistance (Pendulum)</b> | ENV 12633      | <u>Terra Classic</u><br>83 USRV<br><br><u>Terra Sand</u><br>90 USRV   | YES        |

| BRICKS   |                |  |            |
|--|----------------|--|------------|
| Technical Features   | Standards      | Test Results   | Compliance |
|  <b>Determination of water absorption</b>     | EN ISO 10545-3 | <u>Terra Firing</u><br>19%<br><br><u>Terra Sand</u><br>22%                                       | YES        |
|  <b>Determination of compressive strength</b> | EN 772-1       | <u>Terra Firing</u><br>30,6 N/mm <sup>2</sup><br><br><u>Terra Sand</u><br>19,7 N/mm <sup>2</sup> | YES        |
|  <b>Determination of frost resistance</b>     | UNE 67-028-97  | Not affected<br>(limit at -5°C)  | YES        |

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