

RotorDC

Reclaimed cement tile by RTRDC - Technical sheet

1. Specifications

1.1. Original composition

Cement tiles can be of two types:

- *single-layer* : These tiles are composed of white or grey cement, stone powder and colour pigments. These components are mixed with water, molded and then pressed. The cement tile hardens and dries slowly and naturally, without the use of kilns.
- *two-layer* : These tiles consist of a wear layer (visible side) with a composition similar to a single-layer tile, and a sub-layer (base) based on sand, grey cement and fine gravel for strength. The wear layer is thin (around 4 mm) compared to the total thickness of the tile (> 15 mm).



E.g.: two-layer cement tile

Due to their porosity, cement tiles are likely to absorb liquids. This characteristic concerns :

- the underside, where rising damp can lead to efflorescence on the visible surface.
- the edges, where the use of a coloured joint product is not recommended.
- the upper side, where the application of a water/oil repellent coating product is recommended.

1.2. Dismantling and preparation for reuse

Cement tiles are reclaimed by RotorDC or by external service providers. Careful dismantling aims to ensure the integrity of the tiles and a certain homogeneity of the batches. An initial sorting is therefore often carried out on site.

Reclaimed cement tiles usually adhere strongly to the mortar to lay them. The mortar residues are cleaned in our [workshop](#) using special tools developed as part of the RE-TILE subsidized project (Be Circular 2021).



On-site dismantling



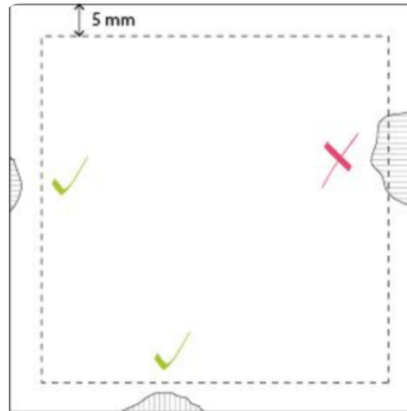
Cleaning mortar residues and sorting quality

1.3. Characteristics of reclaimed tiles

- **Dimensions** : as the mechanical cleaning process does not remove joint residues from the tile edges, tile dimensions may slightly vary (± 2 mm). A variation in thickness (± 2 mm) is also possible. It requires special precautions during laying the tiles.
- **Texture** : mostly smooth and uniform on the upper surface. The edges are usually clean, but given their fragility, slight chipping is common when reclaimed. The underside (not visible) is cleaned of mortar residues by mechanical sawing. It is therefore mostly smooth and often has a slight relief to improve adhesion to the substrate. In most cases, the manufacturer's logo or name appears on the underside.
- **Colour and tint** : as reclaimed cement tiles are not thoroughly cleaned or degreased, variations in colour are possible (even within the same batch). These variations may be

due to the original exposure, the degree of wear, the presence/absence of a previous water/oil repellent film, etc.

- *Condition* : Reclaimed tiles may show signs of deterioration such as surface wear, chips or chipped edges, weave cracks, etc.



2. Applications and laying recommendations

2.1. General informations

Reclaimed cement tiles are often used as interior flooring for applications subject to moderate stress (private homes) or more intense stress (halls, commercial areas). Due to their porosity, they are not recommended for outdoor use or applications involving excessive moisture (sanitary areas) or staining and aggressive products (kitchens, laboratories). The surface of the tiles should be protected by using a water/oil repellent treatment, and special waterproofing precautions can be taken for the substrate.

In addition to the traditional process of laying (i.e. patterns and fixtures, properties and condition of the substrate, available thickness, joints, underlying insulation, etc.), our reclaimed cement tiles require specific precautions before and during installation :

- The presence of residual joint mortar on the edges means that the joints must be at least 3 mm thick. The use of spacers is thus made more complicated.
- The colour of the joint should be as close as possible to the colour of the residual joint (i.e. light grey - grey) in order to minimize contrasts with the joint residue. In all cases due to the porous nature of cement tiles, the use of coloured grouting products is not recommended.

- Some tiles may show efflorescence on their visible surface. This is generally due to capillary action during initial use, which causes lime hydrate deposits to form a haze on the surface of the tiles. These efflorescences do not affect the longevity of the tiles. They can be reduced by a specific abrasive treatment. However, the use of aggressive detergents and acidic or alkaline products should be avoided.

2.2 Laying recommendations

- Tiles need to be stored indoors before installation.
- Installation has to be properly carried out, using the appropriate know-how.
- The slab on which the tiles are to be laid must be stable (bending or settling can cause cracks and damage on the joints or tiles edges).
- If an additional screed is required, it should be placed at least 4 weeks in advance to ensure adequate drying (for information: screed drying time = 1 week per cm of thickness + 1 week).
- The tiles must be dampened before laying.
- Reclaimed cement tiles should be laid using class C2 mortar/adhesive (preferably flex type). The application of a bonding primer on the laying surface is recommended. The double gluing technique is strongly recommended. The thickness of the adhesive must be thick enough to absorb variations in tile thickness.
- The tiles should be professionally laid in the laying mortar and compressed evenly using a rubber hammer. The level of the mortar between the tiles must not exceed half the thickness of the tiles.
- Due to the colour variations, it is recommended to mix tiles when laying. Designers can also opt specifically for a pattern that includes tiles of very different colours as a way to take advantage of a greater diversity of reclaimed tiles.
- Reclaimed cement tiles can be laid over underfloor heating systems as long as special measures are taken (i.e. laying temperature, expansion joints, etc.).
- Do not walk on freshly laid tiles for at least 3 days.
- Wait at least 8 days before grouting the tiles.

2.3. Joint/ Grouting

- Leave a joint of at least 3 mm between tiles.
- Lightly dampen the tiles and apply grout (preferably grey / light grey) to lighten contrast with grout residues from previous use of the tiles.
- When the joints begin to harden, clean tiles carefully with a clean sponge and water to remove any remaining cement.

2.4. Cleaning tiles

Allow the surface to dry completely after installation. Drying time may vary depending on the season and weather conditions (2 to 15 days). During the drying phase, do not cover the floor with protections or carpets to allow maximum ventilation. Temporary flooring (to protect the floor while work is being carried out) should therefore be avoided.

Because the tiles have had a previous life, their appearance may appear dirty. However, if this heterogeneity does not achieve the desired effect, our experience has led us to achieve good results with the following recommendations :

1. Remove dust from the surface to be cleaned.
2. NEVER clean using acid-based cement film removers or products that are not suitable for limestone materials!
3. Surfacing with a monobrush or 400 abrasive disc removes the film of surface dirt.
4. The application of a cleaning product with a brush or sponge can remove certain stains in depth (i.e. Percarbonate of soda (eco), Lithofin MN-Multi-Nettoyant or Möller Chemie HMK R55; Lithofin Lösefix or Möller Chemie HMK R54 for heavy traces of glue/paint/residue).
5. Rinse generously with clean water and leave to dry.
6. If the tiles appear dull, they can be nourished with a colourless or lightly coloured oil (e.g. linseed oil). In our experience, rather than trying to even out the colour by removing stubborn stains, it is sometimes preferable to slightly modify the colour to absorb these stains (i.e. linseed oil). The oil is applied with a dry cloth in several passes, removing any excess.
7. Finally, a water repellent treatment (i.e. - Lithofin MN Fleckstop, Lithofin Fleckstop, Möller Chemie HMK S34) is recommended to seal the pores in the tiles. Apply the water repellent to a clean, dry floor with a clean brush, leave to absorb for 10 minutes and then wipe dry with a slightly damp microfibre towel.
8. After 24 hours drying time, you can enjoy your floor or add a solvent-based wax for a satin/gloss finish.