FRONT®

Processing Guidelines

WasteBasedSlip

— Flooring

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1. Introduction

- WasteBasedSlips are ceramic stone slips sawn from WasteBasedBricks. These bricks comply with the harmonised European product standard NEN-EN 771-1 for clay bricks and are accompanied by a Declaration of Performance (DoP) with CE marking.
- Typical applications include facades, interior walls, and flooring systems.
- WasteBasedSlips are a natural product and display colour nuances due to the secondary raw materials used (construction, demolition, and industrial waste) and the production process. A previously issued colour sample is representative, but deviations may occur.
- WasteBasedSlips are subject to dimensional tolerances. Example: WasteBasedSlips measure 210mm x 23mm x 50mm. The maximum size tolerance for the full brick is 3mm x 2mm x 2mm, with a maximum size variation of 9mm x 6mm x 6mm. The thickness of the WasteBasedSlips may vary by 3 to 4mm. To ensure proper installation, a joint width of 10mm and an adhesive layer of at least 5mm are recommended.

2. Transport and Storage

- Packages must be placed on a dry, flat surface (e.g., scaffold boards).
- Protect packaging against water and dirt while allowing ventilation.
- Keep the packaging foil open on the non-rain side.
- Mix slips from at least four different packages during installation to ensure even colour distribution.
- Plan for at least a 5% cutting loss and breakage.

3. Application Conditions

- Apply slips between temperatures of +5°C and +30°C, avoiding frost and high humidity.
- Ensure the substrate is dry and dust-free.
- Maintain proper ventilation on-site.
- WasteBasedSlips are cut using a wet saw and are typically stored outside before delivery. As such, they are not delivered in a dry state. It is critical to allow the slips to dry thoroughly before installation. A minimum drying period of two weeks in a dry, well-ventilated environment is strongly recommended to ensure proper adhesion and to minimise the risk of moisture-related issues during installation. Drying options before delivery can be discussed with your contact person at FRONT.

4. Application Methods

WasteBasedSlips must always be installed as part of a certified adhesive slip system, consisting of:

- The slip (WasteBasedSlip)
- A compatible adhesive (cementitious or elastic)
- A suitable substrate (see Chapter 5)
- Joint mortar (if applicable)

There are two installation methods for interior flooring

- Adhesive bonding on the underfloor
- Adhesive bonding on a raised access floor

There is one installation method for exterior terraces

- Adhesive bonding on a concrete substrate

There are a few things to consider when installing a floor with WasteBasedSlips:

- Floor bonding: Waterproof, flexible, cement-based adhesives are recommended.
- Floor grouting: It is recommended to use a resin-based grout, as it does not leave stains on the surface. Cement-based grout can also be used, but it may leave residues that adhere to the product. We recommend selecting a grout colour that closely matches the colour of the brick for the best visual result. When using a cement-based grout, sealing needs to be done before grouting.
- Floor sealing or coating: As WasteBasedSlips are delivered unsealed, FRONT highly recommends sealing or coating them to keep surfaces clean and minimise dirt buildup. For outdoor installations or raised access floors, always opt for a coating instead of sealing. Sealant needs to be applied twice and can be done 24 hours after grouting. Coating can be done three weeks after grouting. Sealing lasts for approximately two years. The coating lasts for approximately 5 years.

5. Substrate Requirements

Suitable substrates for exterior terraces include:

- Concrete substrate should be a sloped poured concrete base, at least 3 months old. Inspect for loose sections and remove contaminants by blasting. Apply a bonding agent according to the manufacturer's instructions and install a screed using a 1:4 ratio of rapid-set cement to masonry sand, ensuring a minimum slope of 1.5 cm/m. Once dry, apply primer followed by two layers of waterproof coating. In the first layer, embed sealing tape at wall-floor junctions and corners. After drying, apply the second layer to achieve a total thickness of 2.5 mm. Ensure watertight connections around drainage points.

Suitable substrates for interior floors include:

- Cement screed. The cement screed must be at least 28 days old and sufficiently dry, clean, and free from any bond-inhibiting substances. For floors with underfloor heating, the following protocol must be followed: Before laying ceramic tiles, natural stone, or other hard floor coverings, the prescribed heating and cooling cycle must be carried out. The heating phase may start no earlier than 28 days after the screed has been installed. The floor must be primed.
- Calcium Sulphate Screed. The substrate, a calcium sulphate-based flowing screed, must be dimensionally stable, load-bearing, and dry. If there is a crawl space underneath, a waterproof membrane must be installed beneath the screed. The floor must be sanded and thoroughly vacuumed using an industrial vacuum cleaner. For calcium sulphate-based screeds with underfloor heating, the residual moisture content must be ≤ 0.3% (measured using the CM method). For screeds without underfloor heating, the residual moisture content must be ≤ 0.5%. For underfloor heating systems, the prescribed heating and cooling protocol must be followed before installation of tiles or other floor coverings. For floors without underfloor heating, a residual moisture content of ≤ 0.5% (CM method) must be ensured. After tile installation, the moisture content must not exceed these limits, so a waterproof layer must be present beneath the calcium sulphate screed. Once the floor is sanded and vacuumed and the correct moisture levels are confirmed, the surface is primed and then cross-coated again while still wet.
- Raised access wooden work floor: Installation of a beam layer (frame) with beams placed 60 cm apart, including cross beams. 4 layers of running bond waterproof plywood, measuring 122 x 244 x 1.8 cm, for a total thickness of 7.2 cm. The sheets are glued and screwed with a 3 mm gap between them. Apply mesh tape over the plywood joints.
- Raised access floor. Substrate consisting of a dimensionally stable raised floor with a load-bearing top layer made of 40 mm-thick calcium sulphate panel material. The raised floor is dimensionally stable and securely mounted on a stable and load-bearing structural floor. The elements are interlocked using glued tongue-and-groove joints to form a stable whole. After sanding and vacuuming to remove dust and achieving the appropriate residual moisture levels, the surface is primed and then cross-coated again while still wet. Once the primer is dry, the uncoupling mat is bonded to the substrate.

6. Tools & Equipment

For surface preparation:

- Soft brushes (for dry-brushing WasteBasedSlips before installation)
- Dust extractors or vacuum systems
- Spirit level and measuring tape for layout and control
- Primer rollers or brushes (if primer is required for the substrate)

For adhesive application:

- Notched trowel (sized according to adhesive and slip dimensions)
- Mixing equipment for adhesive (low-speed electric mixer)
- Buckets and water (for cleaning tools and mixing)

For slip installation:

- Rubber mallet (for gentle tapping and alignment)
- Adhesive spreader for "buttering-floating" method
- Spacers or joint gauges (to maintain consistent joint width)

For grouting:

- Joint trowels or pointing tools
- Joint finishing tools for compacting and profiling mortar joints
- Sponge and water (for cleaning excess grout, if permitted)

For cutting and shaping:

- Wet saw (mandatory for cutting WasteBasedSlips; prevents dust and edge chipping)
- Angle grinder with diamond blade (only for dry adjustments—use with dust extraction and PPE)

For sealing or coating

- Low-pressure sprayer (for sealing)
- Roller or brush (for coating)

Personal safety equipment (see Chapter 12)

- Gloves (abrasion protection)
- Safety glasses (especially during cutting)
- Dust mask (FFP2/FFP3) if dry cutting is unavoidable
- Hearing protection (for use with powered saws)

7. Application

During installation of the slips, the installation instructions and application conditions provided by the respective adhesive, grout, sealant, coating and slip system manufacturer must be strictly followed.

Dry-Fit

1. Before applying adhesive, dry-fit the WasteBasedSlips to ensure a uniform layout.
2. Use lines to determine the centre of the installation area and guide/tile placement.
3. Arrange tiles to check for colour variations and achieve a natural blend by mixing WasteBasedSlips from multiple boxes.
4. Ensure edge and corner cuts will be even and visually appealing before committing to placement.
5. Dry brush WasteBasedSlips before applying adhesive

Applying the WasteBasedSlips

1. Ensure the surface is clean, dry, and level before applying adhesive.
2. Mark guidelines on the floor in sections of 6 slips wide.
3. The **t**op and bottom rows of slips in each section must align exactly with the line.
4. Work section by section to maintain clarity and precision.
5. Apply the adhesive directly onto the floor.
6. Use a notched trowel to evenly spread the adhesive.
7. If there are significant size differences between slips, you can also butter the back of the slip with adhesive for better bonding.
8. Press the slips firmly into the adhesive, exactly following the marked lines.
9. Regularly check that the slips are level and that the joints are even.
10. Make any necessary adjustments immediately after laying.
11. Allow the adhesive to cure properly before walking on the floor or grouting (24 hours)

Leave for 24 Hours

1. Once all WasteBasedSlips are installed, allow at least 24 hours for the adhesive to dry completely before grouting.
2. Do not walk on the floor during this curing period to prevent movement or misalignment.

Grouting

If using a cementitious grout, then seal the floor before grouting!

1. Ensure the adhesive is fully dry before proceeding with grouting.
2. Clean grout joints to remove any debris, adhesive residue, or dust
3. Prepare grout according to the manufacturer's instructions
4. Apply the grout according to the manufacturer's instructions
5. Once the joints begin to set slightly (but before the grout hardens), clean the surface with a damp sponge or cloth in circular motions to remove excess grout.
6. After drying, any grout haze can be removed with a dry cloth or a suitable grout residue remover.
7. All perimeter joints must be finished with a good-quality silicone sealer and not with grout. This will allow for expansion and contraction in the tiles during normal heating and cooling cycles.
8. Floor surfaces must be adequately provided with expansion joints, depending on the slip size and room dimensions.
9. Structural expansion joints in the building must be continued on the floor surface.
10. Avoid areas larger than 8 x 8 metres without appropriate expansion joints.

Leave for 24 Hours (if sealing)

1. Prepare the sealant according to the manufacturer's instructions.
2. Seal the floor with an impregnating sealer to protect against stains and moisture.
3. Spray the sealer evenly over the surface using a low-pressure sprayer.
4. Apply two seals for optimal protection.
5. Allow the first coat to absorb fully before applying the second.
6. Sealant needs to be reapplied every two years.

Leave for three weeks (if coating)

1. If you choose to apply a coating, allow the floor to dry for at least three weeks after grouting to ensure all moisture has evaporated.
2. Apply the coating using a roller or brush
3. Make sure to apply an even, thin layer.
4. The coating needs to be reapplied every five years.

8. Quality Control & Inspection

- The floor should be level, evenly spaced, and securely bonded.
- Grout joints must be fully filled and properly sealed.
- Avoid using incorrect adhesives for specific substrates.
- Ensure substrate stability to prevent slip movement.
- Check for proper adhesion before grouting.
- Inspect for consistent grout application and sealing.

9. Maintenance & Cleaning

Routine cleaning

- Clean spills immediately using diluted detergent and water.
- Sweep or vacuum regularly to prevent dirt buildup.
- Use soft brushes, cloths, or low-pressure water (max. 50 bar, cold) to clean the surface.
- Acceptable cleaning agents: pH-neutral or mildly alkaline cleaners, avoid products containing acids, solvents, or bleach.
- Always test cleaning products on a discreet area first.
- Rinse thoroughly with clean water to remove detergent residues.
- Annually inspect for:
    - Biological growth (e.g., moss, algae).
    - Loose or damaged slips.
    - Cracked joints or defective pointing.
    - In coastal or industrial environments, inspect more frequently due to air pollution or salt exposure.

Repair instructions if damage occurs

Minor damage (e.g., chipped slip or joint)

- Remove the defective slip using a small chisel or oscillating tool.
- Clean the cavity thoroughly.
- Re-bond a new slip with the same adhesive type.
- Respect the curing time before repointing.

Joint repair

- Rake out damaged or loose mortar to a depth of 10–12 mm.
  Refill with system-compatible pointing mortar.
- Avoid smearing — especially on glazed surfaces — and clean immediately with a sponge and water.

Severe or structural damage

- Inspect whether failure is local (adhesive or slip) or due to substrate deformation or water ingress.
- Always involve a façade engineer or system specialist if more than isolated defects are found.
- Structural cracks, widespread detachment, or damp ingress require root-cause assessment before repairs.

10. Disposal & Recycling

End-of-life handling

- WasteBasedSlips are composed of ceramic material made primarily from recycled construction and industrial waste. At the end of their service life:
- Slips can be mechanically removed from the substrate using chisels or demolition tools.
  Remaining adhesive or joint mortar may adhere to the back of the slip and affect reuse potential.
  If cleanly removed and undamaged, slips may be reused in low-load applications (e.g., interior cladding or artistic finishes).
- Otherwise, slips should be treated as inert mineral waste.

Environmental impact and recycling options

- WasteBasedSlips are classified as non-hazardous ceramic construction waste (EWC code: 17 01 03 – tiles and ceramics).
- WasteBasedSlips contain no volatile organic compounds (VOCs) and are free from hazardous additives.
- They comply with the Soil Quality Decree (Besluit bodemkwaliteit) and do not release contaminants into soil or groundwater.
- Crushed slips can be incorporated as granulate or filler in new bricks or slips, used as base layer material in road construction or landscaping.
- Engage with local recycling centres that accept inert construction materials for reuse.
- Avoid mixing slips with other demolition waste streams that contain hazardous or organic materials.

11. Legal & warranty information

- FRONT® assumes no responsibility for improper installation or use of unapproved materials. Failure to maintain or clean slips correctly can lead to damage or deterioration. Alterations or modifications to installation guidelines that are not authorised.
- For the latest version of installation and maintenance guidelines, consult FRONT® directly.

12. Health & Safety

- To ensure safe handling and installation of slips, the following PPE is required:
  - Respiratory Protection: Wear a dust mask (FFP2/N95 or higher) or a NIOSH-approved respirator when cutting or handling slips, especially in dry conditions.
  - Eye Protection: Use safety goggles to shield against flying debris when cutting, drilling, or sanding slips.
  - Hand Protection: Wear protective gloves to prevent skin irritation from adhesives, grouts, and dust.
- Always use wet cutting methods to minimise dust, or operate within a dust extraction system.
- Ventilation Requirements: Work in well-ventilated areas or use dust collectors and extraction systems when cutting or processing slips indoors.
- Avoid inhaling fumes from adhesives and sealants by maintaining airflow.
- Always opt for wet cutting methods to suppress airborne particles.
- If dry cutting is necessary, wear a properly fitted respirator and limit exposure duration.
- Regularly clean workspaces with vacuum systems or dust collectors to reduce airborne dust.
- Avoid prolonged exposure to dust by washing hands thoroughly after handling materials.
- Do not allow dust to accumulate in workspaces—clean surfaces regularly.
- Avoid direct skin contact with adhesives and grout to prevent irritation.
- Inhalation of dust: Move to fresh air immediately. Seek medical attention if breathing issues occur.
- Skin contact with adhesives or grout: Wash thoroughly with soap and water. If irritation persists, seek medical advice.
- Eye contact: Rinse with plenty of water for at least 15 minutes. If irritation continues, seek medical assistance.

13. Product suggestions

DISCLAIMER: Product performance and suitability can vary based on individual circumstances, regional standards, and specific project requirements. Therefore, we strongly encourage you to consult with local suppliers, licensed professionals, or relevant experts to obtain advice tailored to your particular needs. Relying solely on the information provided here is at your own risk. We disclaim any liability for damages or issues arising from the use or purchase of any products mentioned. Always ensure compliance with local regulations and standards when selecting and using products.

Floor	Interior	Interior Raised floor
Primer	**Bonding primer suitable for concrete** Mapei - ECO PRIM T PLUS Omnicol Omnibind TP Primer Sopro SG 602 Primer Sealer	**Bonding primer suitable for concrete** Mapei - ECO PRIM T PLUS Omnicol Omnibind TP Primer Sopro SG 602 Primer Sealer
Adhesive	**Flexible cementitious waterproof adhesive** Mapei Keraquick S1 Omnicol PL85 PROF omnicem Sopro FKM XL 444	**Quick drying Flexible cementitious waterproof adhesive** Sopro FKM® S2 Rapid-Set (FKM 5555
Joint	**Resin based grout** Rompox easy Sopro FL Plus Flexible Tile Grout 2–20 mm	**Resin based grout** Rompox easy Sopro FL Plus Flexible Tile Grout 2–20 mm
Decoupling		**Decoupling mat** Sopro Decoupling Mat Extra EM-X 1189
Sealant	**Standard sealant for bricks** Innotec Hydro Guard Sopro Natural Stone Stain Stop NFS 704	**Standard sealant for bricks** Innotec Hydro Guard Sopro Natural Stone Stain Stop NFS 704
Coating	**Standard Pavesealer** WIXX PU block pavesealer	**Standard Pavesealer** WIXX PU block pavesealer
Expansions	**Flexible caulk** Mapei Mapesil AC Sopro Ceramic Silicone	**Flexible caulk** Mapei Mapesil AC Sopro Ceramic Silicone

Floor	Exterior
Bonding bridge / contact layer	**Polymer modified bonding slurry** Sopro HSF 748 Flexible Bonding Slurry with Trass
Smoothing / screed layer (mortar-based)	**High quality cement screed** Sopro Rapidur® B5 – Rapid Drying Screed Binder
Primer	**Quick drying resin based primer** Sopro GD 749 Primer
Waterproof layer	**Flexible sealing slurry** Sopro TDS 823 Two-Component Turbo Sealing Slurry
Joint Sealing	**flexible sealing tape with a central fold.** Sopro AEB 642 (Internal) / AEB 643 (External) – Preformed Sealing Corners
Adhesive	**Flexible, two component, frost resistant adhesive** Sopro Megaflex S2 MEG 665, Sopro megaFlex Dispersie MEG 1567
Grout	**Resin, frost resistant based grout** Rompox easy Sopro FlexVoeg FL Plus 2-20 mm,
Coating	**Standard Pavesealer** WIXX PU block pavesealer
Expansions	**Flexible caulk** Sopro Sanitary Silicone