



4 to 1TM Mud Bed Mix

Sand and Cement Mortar Mix



DESCRIPTION

4 to 1 is a preblended mixture of finely graded sand and Portland cement used for thick-bed mortar installations. *4 to 1* flattens and levels an existing substrate before the installation of tile and stone.

FEATURES AND BENEFITS

- Screed and level from 3/8" to 3" (10 mm to 7,5 cm)
- Ideal for floating shower bases
- Mix with water or *Planicrete*[®] AC

INDUSTRY STANDARDS AND APPROVALS

<u>LEED (Version 3.0) Points Contribution</u>	<u>LEED Points</u>
MR Credit 5, Regional Materials*	Up to 2 points

* Using this MAPEI product may help contribute to LEED certification of projects in the categories shown above. Points are awarded based on contributions of all project materials.

WHERE TO USE

- Floating shower bases
- Can be directly bonded or used as a detached floating mortar bed over a cleavage membrane or waterproofing membrane
- For use in both residential and commercial applications in dry and wet areas
- Mixes with water. For increased performance and reduced porosity, mix with MAPEI's *Planicrete* AC latex admixture.

LIMITATIONS

- *4 to 1* can be mixed with water for most interior conditions. For better performance or for exterior or heavy-duty wet areas, mix *4 to 1* with *Planicrete* AC instead of with water. For details, see the Technical Data Sheet for *Planicrete* AC.
- See ANSI A108.1 industry standard for details on mortar bed installations.
- For direct-bond applications, the concrete surface should have a profile of CSP #3 to #5 or greater. The surface must be primed with a slurry bond coat mixture (see "Mixing" section for details).
- Wood-frame structures must be designed to handle the loads of floating mortar beds and tile assemblies. If the suitability of the structure is unclear, consult a structural engineer or design consultant.
- For covering large areas, please contact Technical Services for recommendations.

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

SUITABLE SUBSTRATES

- Cured concrete floors
- Adequately designed wood frame floor systems (see handbook of the Tile Council of North America [TCNA] or Terrazzo, Tile & Marble Association of Canada [TTMAC] for details)

SURFACE PREPARATION

- For direct-bond applications, the surface must be clean and porous with a profile of CSP #3 to #5 or greater.



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- For details on preparing surfaces to receive ceramic tile and natural stone, see MAPEI's "Surface Preparation Requirements" document for tile and stone installations.

MIXING

1. *4 to 1* can be mixed by hand in a clean wheelbarrow or mortar box, or by machine in a mortar mixer. Mix each 55-lb. (24,9-kg) bag with 2 to 3 U.S. qts. (1,89 to 2,84 L) of clean cool water, or with 2.5 to 3.2 U.S. qts. (2,37 to 3,03 L) of MAPEI's *Planicrete AC*. For hand mixing, gradually add water or *Planicrete AC* to the *4 to 1* while mixing with a mortar hoe in a wheelbarrow or mortar box. For machine mixing, add water or *Planicrete AC* first to mixer. Mix to a dry or semi-dry consistency that can be formed, by hand, into a ball without crumbling apart.

Note: Adding too much water or *Planicrete AC* will reduce the overall performance and invite shrinkage cracks over time.

2. When bonding *4 to 1*, apply a slurry bond coat by using one of the following mixes:
 - Portland cement mixed with water or *Planicrete AC* (1:1 ratio)
 - MAPEI polymer-modified mortar mixed with water

PRODUCT APPLICATION

Direct-bond mortar bed

1. Broom or scrub slurry bond coat into the concrete substrate. It is critical that the slurry be completely wet (rather than partially dry) when applying the *4 to 1*. It is best to "prime as you go" to ensure a constantly wet primer on the floor. Set the screed guides using float strips or mortar screeds to the necessary floor tolerances.
2. On sloping floors, slope where necessary to the drains. Screed guides should be tooled to a square-edge right angle.
3. While the slurry is still wet, spread a thin layer of the *4 to 1* onto the floor surface between strips using a straight edge. Work the *4 to 1* with a wood or magnesium float into the slurry bond coat. Immediately follow with more *4 to 1* to the desired height, compacting and closing up the surface.
4. Finish the surface true and flat to tolerances necessary, typically 1/4" in 10' (6 mm in 3,05 m) for tile and stone.

Floating or unbonded mortar bed

1. Floating screeds are typically used when it is necessary to isolate a tile assembly from problematic floor conditions using a cleavage membrane or slip sheet. The TCNA and TTMAC have a variety of application details covering tile installations over mortar beds incorporating the use of a cleavage membrane. See the latest TCA or TTMAC handbook for more information on floating mortar beds.

2. Apply a cleavage membrane or slip sheet (6 mils [0,15 mm] of polyethylene or 15 lbs. [6,80 kg] of roofing felt) to the substrate.
3. Lay out rolled or self-furred sheets of 2" x 2" (5 x 5 cm) 16-gauge galvanized wire mesh throughout installation. Overlap mesh by 2" (5 cm) and connect using wire ties.
4. Apply *4 to 1* into the wire mesh. The mesh must be either propped up before or during the application, so that the mesh is approximately in the middle of the mortar bed with at least 5/8" (16 mm) of mortar thickness covering the wire mesh.
5. Work the mortar mixture with a wood or magnesium float to compact and close up the surface.
6. Finish the surface true and flat to tolerances necessary, typically 1/4" in 10' (6 mm in 3,05 m) for tile and stone.

EXPANSION AND CONTROL JOINTS

- For expansion and control joints, see complete details in TCA Handbook Detail EJ171 or TTMAC Specification Guide 09 30 00 Detail MJ 301.
- Expansion and control joints placed within the mortar bed should be carried up through the tilework and left as soft joints that are filled with an approved expansive material.

CLEANUP

Clean tools and tile while the mortar is fresh.

PROTECTION AND CURING

- Provide for dry, heated storage on site and deliver materials at least 24 hours before work begins.
- Protect from rain, snow, freezing and direct solar heat, which will cause curing and performance deficiencies.
- Because temperature and humidity (during and after installation of tile) affect the final curing time, allow for extended periods of cure and protection when jobsite temperatures drop below 60°F (16°C) and/or when relative humidity is higher than 70%.
- Allow mortar to fully cure before installing tile.
- If the installation will be covered with a nonbreathable membrane or if a moisture-sensitive stone is the finish, allow an extended period of curing before applying the membrane.

Product Performance Properties at 73°F (23°C) and 50% relative humidity

Laboratory Tests	Results
Pot life at 68°F (20°C)	90 to 120 minutes
Application temperature range	40°F to 95°F (4°C to 35°C)
Compressive strength (ASTM C109, 28 days)	> 2,500 psi (17,2 MPa)
Pull-out rupture (28 days)	
Mixed with water	> 72 psi (0,50 MPa)
Mixed with <i>Planicrete AC</i>	> 260 psi (1,79 MPa)
Color	Gray
Cleanability	With water while fresh

Shelf Life

Shelf life	1 year when stored in a dry location, sealed in original containers at room temperature
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Packaging

Product Code	Size
14155000	55 lb. (24,9 kg) bag

Approximate Product Coverages – Direct Bonding

Thickness	Coverage*
1" (2,5 cm)	5 to 6 sq. ft. (0,46 to 0,56 m ²)
2" (5 cm)	2.5 to 3 sq. ft. (0,23 to 0,28 m ²)

* Coverages shown are for estimating purposes only. Actual jobsite coverages may vary according to substrate conditions and setting practices.

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RELATED DOCUMENTS

See TCA or TTMAC handbooks for most recent information and detail drawings regarding applicable mortar beds.

Refer to MAPEI's Material Safety Data Sheet (MSDS) for specific data related to VOCs, health and safety, and handling of product.

STATEMENT OF RESPONSIBILITY

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith. **ANY CLAIM SHALL BE DEEMED WAIVED UNLESS MADE IN WRITING TO US WITHIN FIFTEEN (15) DAYS FROM DATE IT WAS, OR REASONABLY SHOULD HAVE BEEN, DISCOVERED.**

We proudly support the following industry organizations:



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For the most current BEST-BACKED[™] product data and warranty information, visit www.mapei.com.

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