

Modified Mortar Bed

Polymer-Modified Thick-Bed and Render Mortar



DESCRIPTION

Modified Mortar Bed is a pre-blended, cement-based, polymer-modified thick-bed and render mortar that includes a blend of selected aggregates. Rather than requiring the use of a latex additive, it only needs mixing with water to produce a thick bed mortar of exceptional strength.

FEATURES AND BENEFITS

- Polymer-modified, with no need for latex additives
- Pumpable formulation
- Pre-blended – no jobsite blending of powders or additives required
- High-strength formula

INDUSTRY STANDARDS AND APPROVALS

- ANSI: Meets requirements of ANSI A108.1A

WHERE TO USE

- For use as a bonded or non-bonded, conventional thick mortar bed
- For interior/exterior environments for residential and commercial installations in wet and dry areas
- For use as a scratch coat and wall render, or as a concrete patch from 1/4" to 2" (6 mm to 5 cm)

LIMITATIONS

- Do not install over substrates containing asbestos
- Install only at temperatures between 45°F and 95°F (7°C and 35°C). Maintain a temperature within this range for at least 72 hours after the installation.
- For direct-bond applications, the surface must be clean and porous with an International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #3 to #5. The surface must be primed with a slurry bond coat mixture (see “Product Application” section for details).
- Mortar bed installation method TCNA F141 or F145 (or TTMAC 313F-C): Wood-frame floor systems, including the framing system and subfloor panels, over which tile will be installed must conform with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes. For calculating suitability for live load or if the suitability of the structure is unclear, consult a structural engineer or design consultant.
- Do not apply over standing water or wet surfaces.

SUITABLE SUBSTRATES

- Cured concrete
- Masonry cement block, brick and cement mortar beds
- Cement backer units or CBUs, which should be dampened with water by sponge or spray mist before mortar application. See the manufacturer’s installation guidelines.
- Adequately designed wood-frame floor systems per the handbooks of the Tile Council of North America (TCNA) or Terrazzo, Tile & Marble Association of Canada (TTMAC)
- APA Group 1 and CANPLY 0121 exterior-grade plywood (interior, residential and light commercial applications in dry conditions only, in accordance with TCNA F141 or F145 [or TTMAC 313F-C])
- Existing ceramic and porcelain tile, cement terrazzo, quarry tile and pavers – for interior and dry conditions only when primed with *ECO Prim Grip*™
- Properly prepared and well-bonded cement plaster

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

SURFACE PREPARATION

- All substrates should be structurally sound, stable, dry, clean and free of any substance or condition that may reduce or prevent proper adhesion.
- Surface for direct-bond applications must be porous with a CSP of #3 to #5. Then, prime the surface with a slurry bond coat mixture consisting of a MAPEI polymer-modified mortar meeting ANSI A118.4 when mixed with water; this mortar should be mixed to a creamy consistency.

See MAPEI’s “Surface Preparation Requirements” reference guide in the Tile & Stone Installations Systems section of MAPEI’s Website.

MIXING

Before product use, take appropriate safety precautions. Refer to the Safety Data Sheet for details.

For use as a dry-pack mortar bed

1. Hand-mix in a clean wheelbarrow or mortar box by gradually adding water while slowly mixing in mortar using a mortar hoe. For machine mixing, add the water first to the mixer.
2. Use 2 to 3 U.S. qts. (1.89 to 2.84 L) of cool, clean water per 60 lbs. (27.2 kg) of gradually added *Modified Mortar Bed*.
3. Mix thoroughly to a dry or semi-dry consistency that can be formed, by hand, into a ball without crumbling apart.

For use as a scratch coat and wall render

1. Mix by machine or drill, adding the water first.
2. Use 3 to 3-1/2 U.S. qts. (2.84 to 3.31 L) of cool, clean water per 60 lbs. (27.2 kg) of gradually added *Modified Mortar Bed*.
3. Mix thoroughly to a plastic consistency.

For use as a concrete patch

1. Mix by machine or drill, adding the water first.
2. Use 3 to 4 U.S. qts. (2.84 to 3.79 L) of water per 60 lbs. (27.2 kg) of gradually added *Modified Mortar Bed*. Note that adding too much water will reduce the overall performance and invite shrinkage cracks.
3. Mix thoroughly to a plastic consistency.

PRODUCT APPLICATION

For use as a direct-bond mortar bed

1. Apply a slurry bond coat made from a MAPEI polymer-modified mortar that meets ANSI A118.4, mixed with water to a creamy consistency. Then, while the slurry bond coat is wet, spread *Modified Mortar Bed* and compact it well.
2. If placing tile while *Modified Mortar Bed* is still fresh, then apply a slurry bond coat made from a MAPEI polymer-modified mortar to *Modified Mortar Bed*. While the slurry bond coat is wet, set the tile and beat it in well.

For use as a floated or unbonded mortar bed

- Follow ANSI A108.1A industry requirements.

For use as a scratch coat and wall render (follow methods approved by TCNA or TTMAC)Over masonry or concrete:

1. Dampen the surface with a sponge.
2. Apply a slurry bond coat made from a MAPEI polymer-modified mortar that meets ANSI A118.4, mixed with water to a creamy consistency. This slurry bond coat should be keyed with pressure into the substrate using the flat side of a 1/4" x 1/4" x 1/4" (6 x 6 x 6 mm) square-notched trowel. Immediately apply *Modified Mortar Bed* as a scratch coat to the desired thickness with the trowel's flat side and scratch the coat with an appropriate scratching tool – such as the trowel's square-notched side – before the coat hardens. The scratch coat should not exceed 3/8" (10 mm) in thickness.
3. After the scratch coat hardens, key *Modified Mortar Bed* into the scratch coat. Then apply a render coat (also known as a "brown coat" or "float coat") that does not exceed 5/8" (16 mm) in thickness per lift.
4. Scratch all lifts that will receive additional render coats. Use a standard steel trowel to apply the final render coat and a screed bar to create a plumb and true mortar surface.

5. Allow the completed render coat to cure before tile installation. Allow 24 hours of curing time at an ambient temperature of 70°F (21°C). Temperatures below 70°F (21°C) may require longer curing times. Wait 24 hours per 1/2" (12 mm) in thickness before applying a waterproofing membrane.

Over cleavage (unbounded) membrane and metal lath attached to studs or to solid backing:

1. With pressure, apply a scratch coat of *Modified Mortar Bed* over the metal lath to encapsulate the lath within the mortar bed. The scratch coat should not exceed 3/8" (10 mm) in thickness.
2. Before the coat hardens, scratch it with an appropriate scratching tool.
3. After the scratch coat hardens, key *Modified Mortar Bed* into the scratch coat. Then apply a render coat (also known as a "brown coat" or "float coat"). A render coat should not exceed 5/8" (16 mm) in thickness per lift.
4. Scratch all lifts that will receive additional render coats. Use a standard steel trowel to apply the final render coat, and use a screed bar to create a plumb and true mortar surface.
5. Allow the completed render coat to cure before tile installation. Allow 24 hours of curing time at an ambient temperature of 70°F (21°C). Temperatures below 70°F (21°C) may require longer curing times. Wait 24 hours per 1/2" (12 mm) in thickness before applying a waterproofing membrane.

Pumping method over masonry, concrete and solid backing with metal lath:

- If *Modified Mortar Bed* is pumped, a liquid plasticizer or pump aid should be used. Consult with the pump aid's manufacturer regarding the equipment's compatibility with *Modified Mortar Bed* mixture quantities and mixing ratios. Coverage will vary according to mixing, pumping techniques/equipment, placement, jobsite conditions and "rebound." Do not exceed 5/8" (16 mm) in thickness per lift/application of pumped render. This pumping method should not be used over clay-based materials.

For use as a concrete patch

1. Apply a slurry bond coat of a MAPEI polymer-modified mortar meeting ANSI A118.4 requirements to the concrete surface.
2. Place *Modified Mortar Bed* while the slurry bond coat is wet and transferable.
3. Compact the mortar surface with a flat trowel, filling all voids from 1/4" to 2" (6 mm to 5 cm). Avoid over-troweling.

Notes

- The setting of Portland-cement mortars is retarded by low temperatures. Protect finished work for an extended period when installations take place in cold weather.
- The evaporation of moisture in Portland-cement mortars is accelerated by hot, dry conditions. When installing in temperatures over 85°F (29°C), dampen substrates, apply *Modified Mortar Bed* and protect the freshly spread mortar from premature drying using standard concrete protection methods.
- A slurry bond coat should also be applied to the edges of mortar beds installed from previous work periods.
- Previous mortar beds should have squared shoulders.

EXPANSION AND CONTROL JOINTS

- Provide for expansion and control joints as specified per TCNA Method EJ171, or TTMAC Specification Guide 09 30 00, Detail 301MJ.
- Provide expansion and control joints at the perimeter edge of the floor, around columns, curbs and other areas where a change of plane occurs and at the intersection between areas of different substrates.
- Expansion and control joints in the substrate or placed within the mortar bed should be carried up through any tilework and left as soft joints that are filled with an approved expansive material.
- Do not cover expansion joints with mortar.

CLEANUP

- Clean tools and tile while the mortar is fresh, using only water.

PROTECTION

- Provide for dry, heated storage on site and deliver materials at least 24 hours before work begins.
- Protect the installation from rain, snow, freezing and direct solar heat, which may affect curing and performance properties.
- Maintain a temperature between 45°F and 95°F (7°C and 35°C) for at least 72 hours after the installation.
- Because temperature and humidity (during and after installation of tile) affect the final curing time, allow for extended periods of protection when jobsite temperatures drop below 60°F (16°C) and/or when relative humidity is higher than 70%.
- If *Modified Mortar Bed* is being used to install tile, first allow it to cure for 24 hours per 1/2" (12 mm) of thickness. Curing time depends upon thickness applied and jobsite conditions.
- When installing per ANSI A108.1B, cover the mortar bed for an initial 24 hours.
- If the installation will be covered with a non-breathable membrane or if a moisture-sensitive stone is the finish, allow an extended period of curing before applying the membrane.
- Excessive heat and/or wind could cause premature surface drying and result in cracking.
- Protect the installation from foot traffic for 16 hours, and from water immersion for 7 days.

Product Performance Properties

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

Laboratory Tests	Results
Application temperature range	45°F to 95°F (7°C to 35°C)
Compressive strength – ASTM C270	4,000 to 5,000 psi (27.6 to 34.5 MPa)
Flexural strength – ANSI A118.7.3.7	1,100 to 1,300 psi (7.59 to 8.97 MPa)
Shrinkage at 28 days' curing – ASTM C157	0.15%
TCNA service rating – ASTM C627	Extra heavy
Pull-out rupture at 28 days	200 to 300 psi (1.38 to 2.07 MPa)
VOC content	0 g per L

Shelf Life and Application Properties*

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C)
Pot life at 70°F (21°C)*	90 to 120 minutes
Time until foot traffic is permitted	16 hours
Color	Gray
Cleanability	With water while fresh

* Pot life varies based on jobsite conditions.

Packaging

Size
Bag: 60 lbs. (27.2 kg)

Approximate Coverage**

per 60 lbs. (27.2 kg)

Thickness	Coverage
1/2" (12 mm)	12 sq. ft. (1.11 m ²)
1" (2.5 cm)	6 sq. ft. (0.56 m ²)
2" (5 cm)	3 sq. ft. (0.28 m ²)

** Coverage shown is for estimating purposes only. Actual jobsite coverage may vary according to substrate conditions and setting practices.

ADDITIONAL INFORMATION

Refer to the Safety Data Sheet (SDS) for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability-durabilite@mapei.com.

WARNING

The test results shown in the TECHNICAL DATA table were obtained in compliance with test methods and curing cycles, if applicable, defined in the industry standards referenced on the Technical Data Sheet. Please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use, and the user alone assumes all risks and liability. **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.**

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For the most current product data and BEST-BACKEDSM warranty information,
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