

Mapebond VM

Polymer-Modified Veneer Mortar



DESCRIPTION

Mapebond™ VM is a nonsag mortar designed for the installation of manufactured stone veneer, thin brick and natural stone in exterior and interior applications. *Mapebond VM* may be used at up to 1/2" (12 mm) in thickness to offer outstanding support and bonding strength. This polymer-modified mortar has a high content of unique dry polymer, resulting in excellent adhesion between the substrate and veneer units. It exceeds ANSI A118.4ET and ANSI A118.11 requirements when mixed with water.

FEATURES AND BENEFITS

- Polymer-modified for improved performance
- Nonsag formula for vertical applications
- Extended working time, up to 2 hours
- Smooth and creamy consistency
- Freeze/thaw-resistant after 21 days of curing
- Exceeds ANSI A118.4ET and A118.11

INDUSTRY STANDARDS AND APPROVALS

- ISO 13007: Classification C2TE
- ANSI: Exceeds A118.4ET and A118.11
- CSI: Division 04 – Masonry

WHERE TO USE

- Exterior and interior residential and commercial installations on walls and columns
- For grouted or dry-stack veneer installations
- Above grade

LIMITATIONS

- Do not use with veneer units weighing greater than 15 lbs. per sq. ft. (6.80 kg per 0.93 m²).
- Do not install veneer units on walls that are over 60 feet (18.3 m) above grade. Limit use of thin natural-stone veneer to a height of 30 feet (9.14 m) above grade.
- Do not use directly over particleboard, Masonite and Lauan.
- Do not use over painted concrete or stucco, existing exterior insulation and finish systems (EIFS), structural insulated panel (SIP) walls, gypsum sheathing, fiber cement board, insulated concrete form (ICF) walls, exterior brick veneer or tile veneer.
- Do not install veneer units on exterior walls at the same time that drywall is being installed on the interior walls, which may cause vibration.
- Do not use for moisture-sensitive stone.
- Do not subject veneer units to direct or frequent water contact, such as sprinklers or downspouts.
- Do not subject veneer units to contact with de-icing materials, salt, cleaning chemicals, pool chemicals or harsh chemicals.
- Do not install veneer units on exterior stair risers with exposure to de-icing chemicals, snow and ice removal tools; where standing water is likely to occur; or when appropriate clearances cannot be maintained.
- Do not use veneer units in applications with potential exposure in direct flame such as return into a firebox of a wood- or gas-burning fireplace.
- For installations of veneer units over open-stud construction (with no sheathing), refer to the recommendations from the veneer units' manufacturer.
- Install only at temperatures between 40°F and 95°F (4°C and 35°C).

SUITABLE SUBSTRATES

- Cement backerboard units (CBUs) that meet ASTM C1325
- Concrete masonry units (CMUs)
- Poured concrete walls
- Cement stucco basecoat (unpainted)
- Gypsum wallboard (in interior dry areas only)
- Render/leveling coats

- MAPEI's *Mapelastic*® WP water-resistive barrier
- Exterior-grade plywood (interior only)*

* Plywood underlayments must be a Group 1 exterior-grade plywood CC-plugged or better, conforming to APA classification and U.S. Product Standard PS 1-95 or a "SELECT" or (SEL-TF) CANPLY classified exterior-grade plywood conforming to CSA-0121 standard for Douglas fir for direct-bond applications (interior, residential and light commercial in dry conditions only).

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.
- Concrete substrates that are part of the installation must be absorbent.
- The International Concrete Repair Institute (ICRI) provides guidelines for concrete surface preparation and assessment. The surfaces intended to receive veneer units must have a rough texture to ensure a good mortar bond. Refer to ICRI Technical Guidelines 310.2 for additional information. A concrete surface profile (CSP) equal to or greater than 2 is usually acceptable for the installation of veneer units over concrete and masonry assemblies. If a bondable surface cannot be achieved, attach a substrate of lath with render coat or scratch coat before installing veneer units, according to ASTM C1063.
- The installer must ensure that L/600 total vertical load deflection does not exceed 0.3" for veneer units installed units under live, dead or impact loads.
- If going over a scratch coat, ensure that the scratch coat is fully cured and textured/raked in a horizontal fashion to enable a mechanical bond with the bond coat mortar layer. The scratch coat must comply with ASTM C270 (for site-mix installations) or ASTM C1714/C1714M (for pre-blended installations).

MIXING

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

1. Pour clean, cool, potable water into a clean mixing container (with a recommended volume of 6 U.S. gals. or 22.7 L).
2. For nonsag applications, use about 5.4 to 5.6 U.S. qts. (5.11 to 5.30 L) of water. Where a nonsag attribute is not desired, up to 6 U.S. qts. (5.68 L) of water may be used.
3. Slowly add half of the 50-lb. (22.7-kg) mortar bag into the bucket of water. Thoroughly mix and then slowly add the second half of the bag.
4. Use a low-speed, heavy-duty mixing drill (at about 300 rpm) with an angled cross-blade mixer, auger or spiral mixer. Mix thoroughly until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing. Otherwise, mix by hand for smaller quantities to a smooth, trowelable consistency.
5. Let the mixture stand ("slake") for 5 minutes.
6. Remix.
7. If the mixture becomes heavy or stiff, remix it without adding more liquid.

PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

- Building codes may vary from region to region. Check with local authorities for building codes requirements for your local area.
 - Before installing veneer units, the installer should ensure that proper workmanship is reflected in the wall assembly and that there are no recognizable errors or deficiencies that may compromise the installation or performance of the veneer units' installation. Ensure that any wall penetrations (such as dryer vents, pipes, doors and windows) are properly flashed before installing veneer units.
 - Manufactured-stone veneer units must meet the minimum requirements of ASTM C1670/C1670M. Install manufactured-stone veneer in accordance with the recommended practices of ASTM C1780. Install natural-stone veneer in accordance with ASTM C1242 veneer section 6.11.2 to 6.11.11.
 - Before application of the mortar to the substrate or the back of the veneer units, the substrate and the back of the veneer units should be moistened so that the surfaces appear damp but are free of standing water. Ensure that the back of veneer units are clean of dust, laitance, loose concrete and any excess film that could impede bond.
 - Dry-stacked veneer units should be applied from the corners to the middle of the wall, and from the bottom toward the top of the wall. For grouted veneer units, installing from the top down will minimize cleanup.
1. Using a hand trowel, back-butter the entire back of each veneer units with a nominal thickness of 1/2" (12 mm) of the mortar. Cover the entire back of the veneer units, not just the perimeter. The back-buttered veneer units should be firmly worked onto the substrate and slid slightly back and forth, or with a slight rotating motion, to set the veneer units. This should be done in such a manner as to squeeze the mortar to fill the entire space between the veneer units and the substrate, allowing excess mortar to extrude on all sides around the veneer units. The mortar will start to grab within a few seconds of the setting movement process; at this point, no further movement of the veneer units should be made. Clean excess extruded mortar with the trowel.
 2. Ensure proper contact between the veneer units and substrate by periodically lifting a few pieces to check for 100% mortar coverage.
 3. As an alternative to the back-butter method, mortar may be troweled onto the substrate, completely covering the substrate. Use a 1/4" x 3/8" x 1/4" (6 x 10 x 6 mm) or 1/2" x 1/2" x 1/2" (12 x 12 x 12 mm) U-notch or square-notch trowel to provide full bedding of the veneer unit to the substrate. This method will require a thin layer of mortar using the flat side of trowel to be applied to the back of the veneer unit prior to adhering to the substrate. Per Step 2 above, you will still need to check for 100% coverage.
 4. If going over a scratch coat, the resulting thickness of the scratch coat and setting bed mortar should be nominally 1" (2.5 cm) measured from the outer surface of the water-resistive barrier to the back surface of the veneer units.
 5. As a further alternative, the two mortar-application techniques above may be combined.
 6. If the veneer units are inadvertently moved after the initial set has begun, remove the veneer units, scrape off mortar from the back of the units and the substrate, and then reinstall the units.

Pointing/grouting

- If a pointing mortar is required, allow at least 12 to 24 hours of curing time at 70°F (21°C) before using the pointing mortar.
- When working in cooler temperatures, protect work for an extended time to allow mortar to cure before starting the pointing/grouting process.
- For joints less than 3/4" (19 mm) in width, MAPEI's *Ultracolor® Plus FA* grout may be an option.

Water-resistive barrier

- Always consult with a design professional to determine proper placement of water-resistive barriers in a wall assembly.
- If waterproofing or a water-resistive barrier is required, install MAPEI's liquid-applied *Mapelastick WP* per its Technical Data Sheet and its approved substrate, before mortar application. Confirm with a design professional if *Mapelastick WP* is the right product for the job. *Mapebond VM* has been verified to bond well to this membrane.
- Installation of *Mapebond VM* over nonporous surfaces, such as liquid-applied waterproofing membranes and water-resistive barriers, may require extended setting/curing times for the mortar.

EXPANSION AND CONTROL JOINTS

- See local building codes for guidelines regarding expansion and control joints.

CLEANUP

- Use water only to clean tools and veneer units while the mortar is fresh.

PROTECTION

- Do not disturb the installation for at least 12 to 24 hours before application of pointing mortar or grout.
- Protect the installation from rain for 72 hours, and from freezing for 21 days.

ISO 13007 Classification

Classification Code	Classification Requirement
C2 (cementitious, improved adhesive)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles
T (vertical slip resistance)	≤ 0.019" (0.5 mm)
E (extended open time)	≥ 72.5 psi (0.5 MPa) after 30 minutes

ANSI Specifications

Test Method	Specification Standard	Test Results
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1.03 MPa) at 28 days	150 to 175 psi (1.03 to 1.21 MPa)
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1.38 MPa) at 28 days	225 to 350 psi (1.55 to 2.41 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2.07 MPa) at 7 days	400 to 550 psi (2.76 to 3.79 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1.03 MPa) at 28 days	300 to 425 psi (2.07 to 2.93 MPa)

ANSI A118.4E – extended open time	≥ 75 psi (0.52 MPa) at 30 minutes	Pass
ANSI A118.4T – sag on vertical surfaces	< 0.02" (0.5 mm) at 20 minutes	Pass
ASTM C482 – shear strength to CMU (28-day cure bond strength)	> 50 psi (0.34 MPa)	> 100 psi (0.69 MPa)

Shelf Life and Product Characteristics before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C)
Color	Gray
VOC content	0 g per L

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

Open time**	30 minutes
Pot life**	2 hours
Time before pointing/grouting (walls)**	12 to 24 hours
Embedded thickness range	3/32" to 1/2" (2.5 to 12 mm)

*** Open time, pot life and time before pointing/grouting vary based on jobsite conditions.*

Packaging

Size and Color
Bag: 50 lbs. (22.7 kg), gray

Approximate Coverage***
per 50 lbs. (22.7 kg)

Application Method	Coverage
Adhered veneer installation (dry stack)	15 to 25 sq. ft. (1.39 to 2.32 m ²)
Adhered veneer installation (grouted)	20 to 30 sq. ft. (1.86 to 2.79 m ²)
Using a 1/2" x 1/2" x 1/2" (12 x 12 x 12 mm) square-notch trowel with smooth natural stone or thin brick	40 to 50 sq. ft. (3.72 to 4.65 m ²)

*** Coverage may vary based on a trowel's width/depth/space dimensions and grout joint width. Actual coverages will vary according to substrate profile and veneer type.

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_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

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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