



# Mapeguard<sup>®</sup> UM 35<sup>®</sup> NA

## Uncoupling, Crack-Isolation and Waterproofing Membrane



### DESCRIPTION

*Mapeguard UM 35 [NA]* is an uncoupling, crack-isolation, waterproofing and vapor-management membrane made from high-density polyethylene (HDPE) with a rough surface and polypropylene fabric backing. *Mapeguard UM 35 [NA]* is designed for installing ceramic and stone tile, including over existing non-cushioned resilient flooring, ceramic tile and stone tile. It is designed to perform over challenging substrates, such as young concrete and single-layer 3/4" (19 mm) plywood subfloors with joist spacing of up to 19.2" (49 cm) on center.

### FEATURES AND BENEFITS

- Applicable for concrete or wood substrates
- Crack isolation up to 1/8" (3 mm)
- Low profile, at 1/8" (3 mm) thickness
- Circular-shaped cavities, allowing for easy troweling
- Waterproofing
- Vapor management up to 25 lbs. (11.3 kg) in MVER and 100% relative humidity
- Excellent mechanical and compression strength
- Lightweight
- Holds a chalk line

### INDUSTRY STANDARDS AND APPROVALS

- Meets and exceeds A118.12 and A118.10
- Rated "Extra Heavy" according to the ASTM C627 Robinson Wheel test method

### WHERE TO USE

- Interior floors for residential homes
- Bathroom floors
- Interior floors for commercial construction such as hospitals and hotels

### LIMITATIONS

- Do not use over cracks or control joints subject to out-of-plane movement, or subject to in-plane movement greater than 1/8" (3 mm). See the "Expansion Joints" section below.
- Do not use over substrates containing asbestos, pressboard, particleboard, pressure- or oil-treated plywood, Luan plywood, Masonite, self-stick tile, metal or fiberglass surfaces, floors or dimensionally unstable materials.
- Do not use when hydrostatic pressure exists.
- Do not install in showers or steam rooms.
- Do not use for primary waterproofing.
- Do not use on vertical surfaces; as a roof deck membrane or wear surface; or for submerged applications.
- Do not use premixed products such as ANSI A136.1 adhesives or mastics to set tile over *Mapeguard UM 35 [NA]*.
- Ceramic, porcelain or glass tile or stone set over *Mapeguard UM 35 [NA]* must be 2" x 2" (5 x 5 cm) or larger.
- Installations requiring seam tape to waterproof must be properly sloped to facilitate drainage and prevent standing water.
- Tile must be suitable for floor installations and have a minimum thickness of 7/32" (5.5 mm).

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- When used over young (green) concrete, the concrete must have cured for at least 7 days and be suitable to support tile installation traffic as determined by the project design professional, construction manager or general contractor.
- Do not use on lightweight screeds.
- Do not apply directly on bituminous membranes.

Note: On occasion, dimensionally weak natural stone tile that normally would not be categorized as moisture-sensitive (such as travertine, limestone, marble and agglomerates) can exhibit doming, cupping or curling when large-and-heavy-tile mortars (previously called “medium-bed mortars”) are used over impervious sheet membranes such as *Mapeguard UM 35* [NA]. For this reason, areas requiring more than 3/8” (10 mm) buildup require the use of a self-leveling underlayment or cured mud-bed application before installation of *Mapeguard UM 35* [NA]. When installing natural stone, always do a mockup area of the proposed installation and allow materials to reach a full cure to ensure the desired effect. For details on these methods or materials, contact MAPEI’s Technical Services Department before installation or design.

Note: When using *Mapeguard UM 35* [NA] in conjunction with a floor-heating system, the floor-heating system should be installed over *Mapeguard UM 35* [NA] once it has been covered with mortar that has fully cured.

## SUITABLE SUBSTRATES

- Concrete
- Young (green) concrete that is cured and able to suitable to support tile installation traffic as determined by the project design professional, construction manager or general contractor
- Cementitious mortar beds, self-leveling underlayment and leveling coats
- Industry-approved exterior-grade plywood and APA Sturd-I-Floor, Exposure 1 OSB (interior, dry areas 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 (interior, residential and light commercial floors and countertops in dry conditions only).
- Approved backer units – see manufacturer’s installation guidelines
- Cement terrazzo (interior only)
- Existing ceramic tile or stone (interior only)
- Existing vinyl flooring – vinyl composition tile (VCT), non-cushioned paper-backed/felt-backed sheet vinyl and luxury vinyl tile/plank (LVT/LVP)
- Epoxy terrazzo (with appropriate bond testing – interior only)
- Gypsum underlayment or lightweight concrete\*

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

\* *When using Mapeguard UM 35 [NA] over gypsum-based floor patching or leveling compounds, reference Technical Bulletin titled “Tiling over gypsum” at [www.mapei.com](http://www.mapei.com).*

## SURFACE PREPARATION

- All suitable substrates should be structurally sound, stable, dry, flat, clean and free of any substance or condition that may reduce or prevent proper adhesion.
- Do not use chemical means (acid etching or stripping) to prepare approved substrates. Use mechanical methods only.
- Substrate and ambient temperatures must be between 40°F and 95°F (4°C and 35°C) during installation.
- Mechanically clean and prepare concrete substrates by diamond-cup grinding or other engineer-approved methods to obtain the minimum International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of #1. When concrete requires more mechanical preparation than CSP #1, the final surface must be made smooth by applying *Mapecem<sup>®</sup> Quickpatch*. For large areas, consider using *Ultraplan<sup>®</sup> Extreme 2* self-leveling underlayment. See the respective Technical Data Sheets (TDSs) for more information.

See the “Surface preparation requirements” reference guide in the Tile & Stone Installation Systems section of MAPEI’s Website.

## Exterior-grade plywood and OSB

Maximum allowable deflection for floor systems and substrates: Floor systems, whether wood-framed or concrete, over which the tile will be installed using the appropriate Tile Council of North America (TCNA) method, according to the Floor Tiling Installation Guide, must conform with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes.

- For ceramic tile installations, the maximum allowable floor member live load and concentrated load deflection for framed floor systems must not exceed L/360, where “L” is the clear span length of the supporting member per applicable building code. For natural-stone tile installations, maximum allowable floor member live load and concentrated load deflection for wood-framed floor systems shall not exceed L/720, where “L” is the clear span length of the supporting member, per applicable building code.
- For other specialty flooring products, including marble and slate, refer to the manufacturer’s recommendations for the finish flooring. Enhanced structural performance may be required for ceramic and natural-stone floor products. See the TCNA Handbook for Ceramic Tile Installation.

1. Verify that the deflection under all live, dead and impact loads of interior plywood or OSB APA Sturd-I-Floor Exposure 1 floors complies with industry standards for ceramic tile or stone installations per ANSI A108.01, Section 2.3; TCNA's "Maximum Allowable Deflection for Floor Systems and Substrates" under Substrate Requirements; or TTMAC's installation notes for the specifier/section deflection.
2. Minimum construction for interior ceramic or porcelain tiled floors is as follows:
  - a. For single-layer plywood or OSB subfloor with joist spacing of 16" (41 cm) o.c. – use tongue-and-groove plywood or OSB of 5/8" (16 mm) nominal thickness with a 1/8" (3 mm) gap required between sheets.
  - b. For single-layer plywood or OSB subfloor with joist spacing of 19.2" (49 cm) o.c. – tongue-and-groove plywood or OSB of 3/4" (19 mm) nominal thickness with a 1/8" (3 mm) gap required between sheets.

Note: The first subfloor layer should be 3/4" (19 mm) thick plywood or OSB, either plain with all sheet edges blocked or tongue-and-groove, over bridged joists spaced a maximum of 19.2" (49 cm) o.c. The second subfloor layer (underlayment) should be 3/8" (10 mm) thick, plugged-faced exterior plywood or OSB.

3. For interior natural-stone tiled floors, the minimum subfloor construction requirement is double-layered, regardless of joist spacing. The maximum joist spacing is 19.2" (49 cm) o.c. The double-layer wood floor should consist of a tongue-and-groove subfloor with a nominal thickness of 3/4" (19 mm), and an underlayment with a nominal thickness of 3/8" (10 mm).

## PRODUCT APPLICATION

1. Inspect the subfloor before installing *Mapeguard UM 35* [NA] underlayment membrane to ensure that the substrate is acceptable for tile or stone installation.



2. Always pre-cut and dry-fit *Mapeguard UM 35* [NA] in place.



3. Mix a suitable MAPEI mortar for the substrate to a consistency on the high end of the recommended water range. The mortar should be able to hold a notched ridge while allowing for wetting out the fleece layer backing of *Mapeguard UM 35* [NA]. The mortar should meet the ANSI A118.4, ANSI A118.11 or ANSI A118.15 standard, or be classified as ISO 13007 C2E or better. For fast-track installations, use a rapid-setting MAPEI mortar. If installing over a wood substrate, the mortar must meet ANSI A118.11.
4. With pressure, apply a coat of mortar by using the trowel's flat side to key mortar into the substrate.
5. Apply additional mortar, combing it in a single direction using a 1/4" x 3/16" (6 x 4.5 mm) V-notched trowel. Coverage may vary as a result of mortar consistency, trowel angle, floor flatness, substrate absorption, etc. If full coverage is not achieved, it may be necessary to use a 1/4" x 1/4" x 1/4" (6 x 6 x 6 mm) square-notched trowel.



6. Spread only as much mortar as can be covered with *Mapeguard UM 35* [NA] before the mortar skins over. Open times vary with jobsite conditions and mortar choice.



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7. Embed *Mapeguard UM 35* [NA] into the mortar while it is still wet, with the fabric side down. Using a rubber or wooden float, hand roller or preferably steel roller (not exceeding 75 lbs. or 34.0 kg), apply pressure to ensure proper embedding of the membrane.



8. While laying the rolls of the membrane, it is recommended to leave a 3- to 5-mm gap between the sheets. To ensure a flat surface, do not overlap edges or ends from one roll onto another. Leave about 1/4" (6 mm) between the membrane and the edge of walls, columns, etc., for movement.



9. Lift the membrane occasionally to verify coverage. Proper installation results in full contact between the fleece layer backing and the mortar.



## WATERPROOFING AND VAPOR MANAGEMENT

*Mapeguard UM 35* [NA] is approved for waterproofing for TCNA environmental exposure classifications Res1, Res2, Res6, Com1, Com2 and Com6 when used with *Mapeguard WP ST* sealing tape. For use of *Mapeguard UM 35* [NA] as a waterproofing and vapor management membrane, using *Mapeguard WP ST* tape for sealing is mandatory.

Before laying *Mapeguard UM 35* [NA], check and/or create a suitable slope in the substrate to ensure that water drains away sufficiently.

- After *Mapeguard UM 35* [NA] is embedded on the floor as directed above, *Mapeguard WP ST* sealing tape can be used to waterproof the membrane seams along with a MAPEI mortar that meets the ANSI A118.4, ANSI A118.11 or ANSI A118.15 standard, or is classified as ISO 13007 C2E or better.



- Using a 1/4" x 3/16" (6 x 4.5 mm) V-notched trowel, key in the mortar to the adjoining seams with the trowel's flat side, being sure to fill in any holes or voids.
- Apply mortar on top of the seams with the trowel's notched side. Center *Mapeguard WP ST* over the seam with at least 2" (5 cm) on each side of the seam and then apply *Mapeguard WP ST*. Work the sealing tape into the thin-set with a grout float or the trowel's flat side while the mortar is still workable.
- To waterproof around the walls of the installation area, take a pre-measured length of *Mapeguard WP ST* and fold it in half along its length. One side of the fold will be adhered to the floor and the other side will be adhered up the wall. To accomplish this, follow the installation methods detailed in Steps 1 and 2 above.

**Technical Data**

Color	Blue
Material	HDPE plastic, PP fabric
Dimensions	98'4" x 3'3" (30 x 1 m)
Thickness	1/8" (3 mm)

**ANSI Specifications**

Test Method	Test Results
ANSI A118.10 – Waterproofing membrane for thin-set ceramic tile	Pass
ANSI A118.12, Sec. 5.1.3 – Achieves bond strength of 50 psi (0.34 MPa) or greater in 7 days per test method	Pass
ANSI A118.12, Sec. 5.2.3 – Point load resistance after 28-day cure	Pass

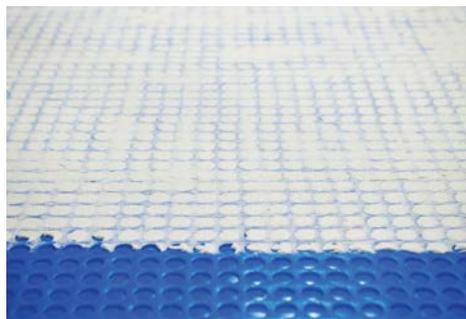
**Product Performance Properties**

Laboratory Tests	Results
ASTM C627 Robinson Wheel test	
Floor system: Concrete slab	Extra Heavy
Floor system: 16" (41 cm) o.c., wood substrate	Extra Heavy
Floor system: 19.2" (49 cm) o.c., wood substrate	Extra Heavy

**Packaging**

Size
Roll: 323 sq. ft. (30.0 m <sup>2</sup> ) and 41 lbs. (18.6 kg)

- For waterproofing edges and corners, pre-formed inside and outside corners may be used in conjunction with *Mapeguard WP ST*.
- Next, embed *Mapeguard WP ST* into the mortar with a grout float or the trowel's flat side, taking care not to puncture the membrane.
- Skim the surface of the *Mapeguard UM 35* [NA] membrane with mortar, using the flat side of the trowel and ensuring that the cavities are completely filled.

**PROTECTION**

- After laying *Mapeguard UM 35* [NA], protect the surface of the membrane in case of heavy traffic.
- Provide for dry, heated storage on site and deliver materials at least 24 hours before tilework begins.
- Do not store *Mapeguard UM 35* [NA] in direct sunlight.
- Do not leave *Mapeguard UM 35* [NA] exposed for more than 72 hours; rather, protect it from other trades if tile will not be set immediately. If temporarily left exposed, *Mapeguard UM 35* [NA] should be covered with a recommended MAPEI thin-set mortar, troweled smooth.
- Protect *Mapeguard UM 35* [NA] from spills, contamination and damage before and during tilework to ensure a positive bond with the mortar.

**TILE INSTALLATION**

For ceramic, porcelain and stone tile

- Interior tile or stone installations can take place immediately after the *Mapeguard UM 35* [NA] installation.
- Immediately apply additional mortar and comb over the membrane using the MAPEI mortar's typical notched trowel (and directional troweling method) suitable for the size and type of tile being installed. In accordance with the TCNA Handbook for Ceramic Tile Installation and with porcelain tile manufacturers, use a MAPEI polymer-modified mortar suitable for the tile being installed. Use a mortar that meets the ANSI A118.4, ANSI A118.11 or ANSI A118.15 standard, or is classified as ISO 13007 C2E or better. For fast-track installations, use a rapid-setting MAPEI mortar. The engineered design of *Mapeguard UM 35* [NA] manages moisture dissipation to control drying of the mortar between the tile and the membrane.

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For moisture-sensitive stone tile

1. Prefill the cavities in the *Mapeguard UM 35* [NA] membrane with an approved MAPEI polymer-modified mortar that meets the ANSI standards mentioned above.
2. Allow the mortar to cure overnight.
3. Use *Kerapoxy<sup>®</sup> 410* premium, 100%-solids epoxy setting mortar per its TDS recommendations to install moisture-sensitive stone over the prefilled *Mapeguard UM 35* [NA].

## EXPANSION JOINTS

- Honor expansion joints throughout *Mapeguard UM 35* [NA], tiles and grout per industry standards.
- When necessary, cut tiles along both edges of the expansion joints. Do not allow tiles and mortar to overlap the expansion joints.
- Provide for movement as required by TCNA Method EJ171 or TTMAC Specification Guide 09 30 00, Detail 301MJ.

## GROUTING

- Select an appropriate MAPEI cement, ready-to-use or epoxy grout. Allow for longer drying time before grouting when installing large-format tiles (that is, tiles greater than 15" or 38 cm on one or more sides).
- Grouting may be done once the mortar has cured enough to allow light traffic, which will depend upon the mortar used, tile size, tile type and jobsite conditions.

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](mailto:sustainability_USA@mapei.com) (USA) or [sustainability-durabilite@mapei.com](mailto:sustainability-durabilite@mapei.com) (Canada).

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