



North American
ADHESIVES®

NA 3780

Magna Flex™ Pro

Multipurpose Floor, Wall and Membrane Mortar



PRODUCT DESCRIPTION

NA 3780 Magna Flex Pro is highly versatile and can be used as a large-and-heavy-tile mortar and thin-set mortar for installations on floors, walls and countertops. It can also be used as a mortar over uncoupling, crack-isolation, soundproofing and waterproofing membranes. NA 3780 Magna Flex Pro meets or exceeds industry-standard ANSI A118.4TE and A118.11 bond strength requirements, and is ISO 13007 C2TE classified.

FEATURES AND BENEFITS

- Nonsag formula for large-format and heavy tile and stone in wall applications
- Nonslump formula for large-format and heavy tile and stone in floor applications
- For bond coats up to 1/2" (12 mm) in embedded thickness
- Smooth and creamy consistency makes it easy to apply.
- Polymer-enriched for high performance
- Can be used over plywood and a variety of membranes

USES

- For most interior and exterior residential installations on floors, walls and countertops in dry and wet areas (see wall specifications under the "Limitations" section)
- For most interior and exterior commercial installations on floors and countertops
- For most interior commercial installations on walls
- For installation of ceramic and porcelain tile, cultured stone, quarry tile, pavers, Saltillo tile, and most types of marble, granite and natural stone

SUBSTRATE REQUIREMENTS

All substrates should be structurally sound, stable, dry, clean and free of any substance or condition that may reduce or prevent proper adhesion. See North American Adhesives' (NAA's) "Surface Preparation Requirements" document at www.na-adhesives.com.

Tile Council of North America (TCNA) Statement on Deflection Criteria

Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the "intended use" of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

Consult Technical Services for installation recommendations regarding substrates and conditions not listed.

SUITABLE SUBSTRATES (properly prepared)

- Concrete (cured at least 28 days)
- Masonry cement block, brick, cement mortar beds and leveling coats
- Cement backer units (CBUs) – see the manufacturer's installation guidelines
- Gypsum wallboard and plaster – interior walls in dry areas only
- APA Group 1 and CANPLY 0121 exterior-grade plywood (interior, residential and light commercial floors/countertops in dry conditions only)
- Properly prepared vinyl composition tile (VCT), noncushioned sheet vinyl and cutback residue (interior installations only)
- Properly prepared existing ceramic and porcelain tile, quarry tile and pavers (interior applications in dry conditions only)
- Membranes such as those for uncoupling, waterproofing, crack isolation and sound reduction (e.g., NA 1550 Crack-Isolation Membrane and NA 1740 Waterproof Coating)

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See NAA's "Surface Preparation Requirements" document at www.na-adhesives.com.

LIMITATIONS

- Install only at temperatures between 40°F and 95°F (4°C and 35°C).
- Do not use for moisture-sensitive stone (green marble; some limestone and granite), agglomerate tiles, cultured marble or resin-backed tiles. Instead, use suitable epoxy or urethane adhesives. See the respective Technical Data Sheets for more information.
- Do not use over dimensionally unstable substrates such as hardwood flooring, oriented strand board (OSB), substrates containing asbestos, or metal. See the "Suitable Substrates" section.
- To use directly over gypsum-based patching or leveling substrates, apply a suitable sealer/primer before use.
- Use a white mortar when installing light-colored stones and translucent marble.
- Installations of tile over nonporous surfaces, such as waterproofing membranes and existing tile, may require extended setting/curing times. Dimensionally weak stone (limestone and travertine) is limited to thin-set applications only.
- Do not use for installations subject to water immersion, such as pools and spas.
- Do not use for exterior commercial wall applications.
- Not recommended for areas subject to severe freeze/thaw conditions. Instead, use a liquid latex additive mortar system such as *NA 3100 Floor Set™* or *NA 3120 Dual Set™* mixed with *NA 3000 Mortar Additive*.

MIXING

Consult the Safety Data Sheet for safe-handling instructions.

Per 25-lb. (11,3-kg) bag

1. Depending on application, you may choose to use one of the following water ratio options when mixing:
 - a. **Option A:** For nonslump floor applications and nonsag vertical applications, pour between 3.25 to 3.5 U.S. qts. (3,08 to 3,31 L) of clean water in a clean mixing container.
 - b. **Option B:** For membranes, pour between 3.5 to 3.75 U.S. qts. (3,31 to 3,55 L) of clean water in a clean mixing container.
2. Gradually add 25 lbs. (11,3 kg) of powder while slowly mixing.
3. Use a low-speed mixing drill (at about 300 rpm) with an angled cross-blade mixer or double-box mixer. Mix thoroughly until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.

4. Let the mixture stand ("slake") for 5 minutes.
5. Remix.
6. If the mixture becomes heavy or stiff, remix without adding more liquid.

Per 50-lb. (22,7-kg) bag

1. Depending on application, you may choose to use one of the following water ratio options when mixing:
 - a. **Option A:** For nonslump floor applications and nonsag vertical applications, pour between 6.5 to 7 U.S. qts. (6,15 to 6,62 L) of clean water in a clean mixing container.
 - b. **Option B:** For membranes, pour between 7 to 7.5 U.S. qts. (6,62 to 7,10 L) of clean water in a clean mixing container.
2. Gradually add 50 lbs. (22,7 kg) of powder while slowly mixing.
3. Use a low-speed mixing drill (at about 300 rpm) with an angled cross-blade mixer or double-box mixer. Mix thoroughly until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
4. Let the mixture stand ("slake") for 5 minutes.
5. Remix.
6. If the mixture becomes heavy or stiff, remix without adding more liquid.

APPLICATION

1. Choose a notched trowel (see the "Approximate Coverage" chart) with sufficient depth to achieve more than 85% mortar contact to both the tile and substrate for all interior applications, and more than 95% for exterior, commercial floor and wet applications. It may be necessary to back-butter the tile in order to meet these requirements. (Refer to ANSI A108.5 specifications and TCNA handbook guidelines.)
2. With pressure, apply a coat of mortar by using the trowel's flat side to key the mortar into the substrate.
3. Apply additional mortar, using the trowel's notched side to comb the mortar in a single direction parallel to the tile's shortest dimension.
4. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.
5. Place tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between the mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage.
6. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting (see ANSI A108.10 guidelines).



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. Do not cover any expansion joints with mortar.

CLEANUP

- While the mortar is fresh, clean tools and tile with water.

PROTECTION

- Protect from foot traffic for 24 hours before grouting.
- Allow for extra drying time before grouting if applying over a membrane.
- Protect from heavy traffic, frost and rain for 7 days.

Product Characteristics	
at 73°F (23°C) and 50% relative humidity	
Colors	Gray; white
Packaging	Bag: Gray, 50 lbs. (22,7 kg) Bag: White, 50 lbs. (22,7 kg) Bag: Gray, 25 lbs. (11,3 kg) Bag: White, 25 lbs. (11,3 kg)
Shelf life	1 year when stored in original, unopened packaging
Open time*	30 minutes
Pot life*	> 2 hours
Time before grouting (walls)*	8 to 16 hours
Time before grouting (floors)*	24 hours
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Application temperature range	40°F to 95°F (4°C to 35°C)
Embedded thickness range	3/32" to 1/2" (2,5 to 12 mm)

* Cold temperature or high humidity may alter these properties.

ISO 13007 Classification

Classification Code	Classification	Test Characteristic
C2 (cementitious, improved adhesive)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles	Using porcelain tile
T (vertical slip resistance)	≤ 0.019" (0,5 mm)	Using porcelain tile
E (extended open time)	≥ 72.5 psi (0,5 MPa) after 30 minutes	Using glazed ceramic wall tile

ANSI Specification

Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1,38 MPa) at 28 days	220 to 340 psi (1,52 to 2,34 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2,07 MPa) at 28 days	395 to 540 psi (2,72 to 3,72 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1,03 MPa) at 28 days	295 to 415 psi (2,03 to 2,86 MPa)
ANSI A118.4E – extended open time	≥ 72.5 psi (0,5 MPa) at 30 minutes	Pass
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1,03 MPa) at 28 days	Pass

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Approximate Coverage*		
Typical Trowels	Coverage per 25 lbs. (11,3 kg)	Coverage per 50 lbs. (22,7 kg)
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm)	43 to 51 sq. ft. (4,0 to 4,74 m ²)	85 to 103 sq. ft. (7,90 to 9,57 m ²)
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm)	32 to 37 sq. ft. (2,97 to 3,44 m ²)	63 to 74 sq. ft. (5,85 to 6,87 m ²)
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm)	22 to 25 sq. ft. (2,04 to 2,32 m ²)	43 to 51 sq. ft. (4,0 to 4,74 m ²)
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm)	15 to 17 sq. ft. (1,39 to 1,58 m ²)	29 to 34 sq. ft. (2,69 to 3,16 m ²)

* Trowel dimensions are width/depth/space. Actual coverage will vary according to substrate profile and tile type.

Industry Standards and Approvals	
LEED v4 Points Contribution	LEED Points
Environmental Product Declaration (EPD): Tile Council of North America (TCNA) Industry Average EPD for Mortars**	1/2 point
Health Product Declaration (HPD)**	Up to 2 points

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



MAPEI® Corporation
1144 East Newport Center Drive
Deerfield Beach, FL 33442
U.S. and Puerto Rico
Customer Service: 1-800-747-2722
Technical Services: 1-800-637-7753

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Refer to the Safety Data Sheet for specific data related to health and safety as well as product handling. For the most current product data and warranty information, visit www.na-adhesives.com.



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.**

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