



North American
ADHESIVES®

NA 3800

Magna Flex™ Plus

**Premium, Non-Sag, Large Tile
and Stone Mortar**



PRODUCT DESCRIPTION

NA 3800 Magna Flex Plus is a premium, non-sag, medium-bed mortar that is ideal for installing large-format tile and stone on interior/exterior floors, walls and countertops. This mortar has a high content of unique dry polymer, which provides an excellent bond between the substrate and tile or stone.

USES

- For setting ceramic and porcelain tiles, cultured stone, quarry tiles, pavers, Saltillo tiles, and most types of marble, granite and natural stone
- For interior/exterior residential and commercial installations on floors and walls in dry and wet areas
- For interior/exterior submerged applications such as pools, fountains and water features
- Polymer-fortified for high performance and deformability
- Non-sag formula is ideal for installing large-format tile and stone on walls
- Nonslump formula is ideal for installing large-format tile and stone on floors to minimize lippage (uneven or mismatched edges between tiles)
- For use as a medium-bed mortar up to 3/4" (19 mm) thick for setting large-format and ungauged tile and stone
- For use as a thin-set mortar (3/32" to 1/4" [2,5 to 6 mm] thick) for setting small-format tile and stone
- Smooth, creamy consistency; easy to apply

SUBSTRATE REQUIREMENTS

Substrates must be in accordance with ANSI A108.5 current standards and recommendations. All supporting surfaces must be structurally sound. The surface area that will receive tile must be dry, clean and free of dust, oil, grease, tar, paint, wax, curing agents, primers, sealers, release agents,

existing adhesives and any other substance that can weaken the adhesive's bond to the substrate. If the surface contains these substances, they must be mechanically removed.

Tile Council of North America (TCNA) 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 TCNA method, according to the Floor Tiling Installation Guide, shall be in conformance with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes.

The owner should communicate in writing to the project design professional and general contractor the intended uses of the tile installation, including in-service loads or information to allow a project design professional to calculate such.

The tile contractor shall not be responsible for problems resulting from any structural subfloor installation not compliant with applicable building codes, unless structural subfloor was designed and installed by tile contractor, nor for problems from overloading. Please reference the most current version of the TCNA Handbook for more complete substrate requirements.

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

SUITABLE SUBSTRATES

- Fully cured concrete (cured for at least 28 days)
- Cement backer units – see manufacturer's installation guidelines



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- Cement mortar beds and leveling coats
- Masonry block and brick
- Gypsum wallboard, properly primed (interior only)
- Plywood underlayments that 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 floors and countertops in dry conditions only)
- North American Adhesives (NAA) waterproofing, crack-isolation and sound-reduction membranes over recommended substrates
- Properly prepared vinyl composition tile (VCT) and old, dry cutback adhesive residue (interior only)
- Properly prepared existing ceramic and porcelain tile, quarry tile and pavers (interior and dry conditions only)

See the "Surface Preparation for Tile and Stone Installations" reference guide in the Document Library section of NAA's Website at www.na-adhesives.com.

LIMITATIONS

- Install only at temperatures between 40°F and 95°F (4°C and 35°C).
- Not recommended for:
 - Application over wood planking, presswood, particleboard, chipboard, oriented strand board (OSB), treated plywood, hardwood flooring, Masonite, Luan, plastic laminate surfaces, fiberglass, poured epoxy floors, self-stick tile, non-cushioned sheet vinyl, substrates containing asbestos, metal or dimensionally unstable materials
 - Setting moisture-sensitive stone (green marble, some limestones and granites), agglomerate tiles, cultured marble or resin-backed tiles. Instead, use a suitable epoxy or urethane adhesive.
- To use directly over gypsum-based patching or leveling substrates, apply a suitable sealer before use.
- Do not spread more material than can be tiled over before the ridges skin over.
- For light-colored and translucent natural stone, a white mortar is recommended.
- This product has about 4 hours of working time after mixing.

- For areas subject to severe freeze/thaw conditions, mix *NA 3000 Mortar Additive* with an appropriate thin-set mortar.
- Consult local building code requirements for use on exterior commercial building facades (such as shopping malls, high-rise residential and office buildings).
- Installations of tile over nonporous surfaces, such as waterproofing membranes and existing tile, may require extended setting/curing times. Dimensionally weak stone (limestone, travertine) is limited to thin-set applications only.
- Allow the tile or stone to cure for at least 28 days before the final installation is submerged in water.

MIXING

Consult the Safety Data Sheet for safe-handling instructions.

1. Into a clean mixing container, pour about 6 to 6.5 U.S. qts. (5.68 to 6.15 L) of clean potable water. Gradually add 50 lbs. (22.7 kg) of powder while slowly mixing.
2. Use a low-speed mixing drill (at about 300 rpm), with an angled cross-blade mixer or double-box mixer. Mix thoroughly for about 3 minutes and until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
3. Let the mixture stand ("slake") for 5 minutes.
4. Remix for 2 minutes.
5. If the mixture becomes heavy or stiff, remix without adding more liquid or powder.

APPLICATION

1. Choose a typical notched trowel (see the "Approximate Coverage" chart) with sufficient depth to achieve more than 85% mortar contact with both the tile and substrate for all interior applications, and more than 95% for exterior installations, 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 by using the trowel's flat side to key the mortar into the substrate.
3. Apply additional mortar, combing it in a single direction with the trowel's notched side.
4. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.

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- Place the tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to the 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.
- 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).

MOVEMENT JOINTS

- Provide for expansion and control joints where specified. Refer to the most current TCNA handbook for ceramic tile installation, Detail EJ-171.
- When necessary, cut the tiles along both edges of the expansion joints. Do not allow the tile and mortar to overlap the joints.
- Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints.
- Install the specified compressible bead and sealant into all expansion and control joints.

GROUTING

- Wait 24 hours before grouting with an appropriate NAA grout.

CLEANUP

- Clean tools, tile and other surfaces with water while mortar is fresh.

PROTECTION

- Provide for dry, heated storage on site and deliver materials at least 24 hours before tilework begins.
- Protect tilework from adverse weather for at least 21 days after the installation.
- Floors: Protect from foot traffic and wait 24 hours before grouting. Protect from heavy traffic for 7 days. Protect from frost and rain for 7 days.
- Walls: Wait 8 to 16 hours before grouting. Protect from impact, vibrations and heavy hammering on adjacent and opposite walls for at least 14 days after the installation.
- Because temperature and humidity (during and after the installation of the tile) affect the final curing time, allow for extended periods of curing and protection when temperatures drop below 60°F (16°C) and/or when the relative humidity (RH) is higher than 70%.

Product Characteristics at 73°F (23°C) and 50% RH	
Colors	Gray; white
Packaging	Bag: Gray, 50 lbs. (22,7 kg) Bag: White, 50 lbs. (22,7 kg)
VOCs (Rule #1168 of California's SCAQMD)	0 g per L
Shelf life	1 year when stored in original sealed container at room temperature in a dry, heated area. Protect from moisture, freezing and excessive heat.
Open time*	30 to 35 minutes
Pot life*	4 hours
Time before grouting*	Wall joints: 8 to 16 hours Floor joints: 24 hours
Cleanup	With clean water while fresh

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

ISO 13007 Classification	
Classification Code	Classification Requirement
C2 (cementitious, improved adhesion)	≥ 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 20 to 30 minutes
S1 (normal deformation of mortar)	≥ 0.1" (2.5 mm)
P1 (normal adhesion to plywood)	≥ 72.5 psi (0.5 MPa)

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ANSI Specification		
Test Method	Specification Standard	Test Results
ANSI A118.11 – quarry tile to plywood, shear strength	> 150 psi (1.03 MPa) at 28 days	170 to 310 psi (1.17 to 2.14 MPa)
ANSI A118.15E – extended open time	≥ 72.5 psi (0.5 MPa) at 30 minutes	Pass
ANSI A118.15 – impervious ceramic (porcelain) mosaics, shear strength	> 400 psi (2.76 MPa) at 28 days	465 to 625 psi (3.21 to 4.31 MPa)
ANSI A118.15 – glazed wall tile, shear strength	> 450 psi (3.10 MPa) at 7 days	570 to 780 psi (3.93 to 5.38 MPa)
ANSI A118.15 – quarry tile to quarry tile, shear strength	> 150 psi (1.03 MPa) at 28 days	310 to 450 psi (2.14 to 3.10 MPa)
ANSI A118.15T – sag on vertical surfaces	< 0.02" (0.5 mm) at 20 minutes	Pass
ANSI A118.15H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test Lippage change < 1/64" (0.4 mm)	Pass

Note: Anything that meets A118.15 by definition exceeds A118.4.

Approximate Coverage* per 50 lbs. (22.7 kg)		
Typical Trowels		Coverage
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm)		85 to 95 sq. ft. (7.90 to 8.83 m ²)
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm)		65 to 75 sq. ft. (6.04 to 6.97 m ²)
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm)		40 to 50 sq. ft. (3.72 to 4.65 m ²)
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm)		35 to 40 sq. ft. (3.25 to 3.72 m ²)

* Trowel dimensions are width/depth/space. Coverage shown is for estimating purposes only. Actual coverage depends on substrate profile and porosity, equipment used, thickness applied, temperature and humidity. To ensure appropriate contact, proper trowel selection is mandatory (see the "Application" section).

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 or replace requirements per the TDS in effect at the time of the NAA product installation. For the most up-to-date TDS and warranty information, visit our Website at www.na-adhesives.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED NAA 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.**