



North American
ADHESIVES®

NA 3650

Magna Floor™

Large-and-Heavy-Tile Mortar



PRODUCT DESCRIPTION

NA 3650 Magna Floor is a medium-bed, polymer-modified mortar for use under large-format and heavy tile and stone. It also works great under porcelain tile, heavy-ribbed-back tile, brick pavers, dimensional tile, quarry tile, Saltillo tile, marble, granite and natural stone.

FEATURES AND BENEFITS

- Nonslump for large-format and heavy tile and stone
- Nonsag for large-format and heavy tile and stone in wall applications
- For thicker bond coats from 3/32" to 1/2" (2.5 to 12 mm)
- Smooth and creamy consistency makes it easy to apply

USES

- For most interior/exterior residential installations on floors, walls and countertops
- For most interior/exterior commercial installations on floors and countertops
- For most interior commercial installations on walls

SUBSTRATE REQUIREMENTS

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 Adhesive's (NAA's) "Surface Preparation for Tile and Stone Installations" document in the "Document Library" section of the NAA Website at www.na-adhesives.com.

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

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

When mixed with water

- Concrete (cured at least 28 days)
- Cement mortar beds and leveling coats
- Cement backer units (CBUs) – see manufacturer's installation guidelines

When mixed with NA 3000 Mortar Additive

- Properly prepared and well-bonded ceramic and porcelain tile, quarry tile and pavers (interior and dry conditions only).
- Vinyl composition tile (VCT), cutback residue and noncushioned sheet vinyl (interior only).
- Plywood underlayment 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).



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- Waterproofing, crack-isolation and sound-reduction membranes such as *NA 1740 Waterproof Coating* and *NA 1550 Crack-Isolation Membrane*

LIMITATIONS

- Not recommended for:
 - Moisture-sensitive stone (green marble, some limestone and some granite), agglomerate tiles or resin-backed tiles. Instead, use suitable epoxy or urethane adhesives (see the respective Technical Data Sheets for details). For resin-backed tile, contact Technical Services.
 - Installations subjected to prolonged water immersion (e.g., pools and spas).
 - Dimensionally unstable substrates such as hardwood flooring, oriented strand board (OSB), substrates containing asbestos, or metal. See the "Suitable Substrates" section above.
 - Where the substrate deflection exceeds L/360 for tile and L/720 for stone tile under live or dead loads.
- Use with *NA 3000 Mortar Additive* for areas subject to severe freeze/thaw conditions.
- To use directly over gypsum-based patching and leveling substrates, apply a suitable primer/sealer before use.
- Large-and-heavy-tile mortars are not designed to correct uneven floors. Substrates must be flat and level (according to substrate-flatness requirements in ANSI A108.02) before the installation of large-format tile.
- Use only at temperatures between 40°F and 95°F (4°C and 35°C).

MIXING

Consult the Safety Data Sheet for safe-handling instructions.

1. Into a clean mixing container, pour about 6.5 to 7.5 U.S. qts. (6.15 to 7.10 L) of clean potable water, or about 2 U.S. gals. (7.57 L) of undiluted *NA 3000 Mortar Additive* acrylic additive. For uncoupling, waterproofing and peel-and-stick membranes, use 2 U.S. gals. (7.57 L) of undiluted *NA 3000 Mortar Additive*.
2. Gradually add 50 lbs. (22.7 kg) of *NA 3650 Magna Floor* powder while slowly mixing.
3. Use a low-speed mixing drill (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 or powder.

APPLICATION

1. Choose a typical notched trowel (see the "Approximate Coverage" chart below) with sufficient depth to achieve more than 80% mortar contact to 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 tiles in order to reach 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 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.
5. Place the 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 Detail EJ171, or TTMAC Specification Guide 09 30 00, Detail 301MJ. Do not cover any expansion joints with mortar.

CLEANUP

- Clean tools and the tile surface while the mortar is fresh.

PROTECTION

- Do not disturb, allow light traffic or grout tiles for at least 24 hours.
- During installation and for at least 21 days after completion, protect from weather and freezing, and do not immerse in water.
- Protect from general traffic for at least 72 hours and heavy traffic for at least 7 days after installation.

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Product Characteristics	
at 73°F (23°C) and 50% relative humidity	
Packaging	Bag: 50 lbs. (22,7 kg), white Bag: 50 lbs. (22,7 kg), gray
Shelf life	1 year in a dry place in original, unopened bag
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
Cleanup	With clean water while fresh

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

ISO 13007 Classification (when mixed with water)	
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 30 minutes




ISO 13007 Classification (when mixed with NA 3000 Mortar Additive)	
Classification Code	Classification Requirement
C2 (cementitious, improved adhesion)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles
E (extended open time)	≥ 72.5 psi (0.5 MPa) after 30 minutes
S1 (normal deformation of mortar)	≥ 0.1" (2.5 mm)

ANSI Specification (when mixed with water)		
Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1.38 MPa) at 28 days	255 to 315 psi (1.76 to 2.17 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2.07 MPa) at 28 days	325 to 445 psi (2.24 to 3.07 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1.03 MPa) at 28 days	370 to 515 psi (2.55 to 3.55 MPa)
ANSI A118.4H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test Lippage change < 1/64" (0.4 mm)	Pass
ANSI A118.4E – extended open time	≥ 72.5 psi (0.5 MPa) at 30 minutes	Pass
ANSI A118.4T – sag on vertical surfaces	< 0.02" (0.5 mm) at 20 minutes	Pass

ANSI Specification (when mixed with NA 3000 Mortar Additive)		
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 190 psi (1.03 to 1.31 MPa)

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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) 	75 to 90 sq. ft. (6.97 to 8.36 m ²)
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm) 	55 to 65 sq. ft. (5.11 to 6.04 m ²)
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm) 	25 to 30 sq. ft. (2.32 to 2.79 m ²)

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

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.**