

NA 3120

Dual Set™

Floor and Wall Tile Mortar



North American
ADHESIVES®



PRODUCT DESCRIPTION

NA 3120 Dual Set is a specially formulated thin-set mortar that, when mixed with water, is ideal for setting most ceramic tiles, ceramic mosaics, quarry tiles and pavers on indoor/outdoor residential floors and walls made of concrete, masonry block or brick under intermittent water exposure.

USES

- For setting ceramic tile, quarry tile, pavers and Saltillo tiles and most types of marble, granite and natural stone on floors when mixed with water
- For setting all the above plus porcelain tile and most commercial installations when mixed with *NA 3000* additive instead of water
- For submerged installations (pools, fountains) and installations subject to extreme freeze/thaw conditions when mixed with *NA 3000* additive instead of water

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) 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)

When mixed with water:

- Fully cured concrete (cured for at least 28 days)
- Cement mortar beds and leveling coats
- Masonry block and brick

When mixed with *NA 3000* additive:

- All the substrates listed above
- Cement backer units – see manufacturer's installation guidelines
- Gypsum wallboard and primed plaster (interior walls in dry areas only)
- APA and CANPLY Group 1 exterior-grade plywood (interior, residential and light commercial in dry conditions only)
- Properly prepared vinyl composition tile (VCT), plastic laminate countertops and old, dry cutback adhesive residue (interior installations)
- Properly prepared existing ceramic and porcelain tile, cement terrazzo, quarry tile and pavers (interior and dry conditions only)

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- North American Adhesives (NAA) waterproofing, crack-isolation and sound-reduction membranes
- 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).
- Not recommended for:
 - Application over presswood, particleboard, chipboard, oriented strand board (OSB), hardwood flooring, Masonite, Lauan, substrates containing asbestos, metal or dimensionally unstable materials
 - Setting glass tile or moisture-sensitive stone (green marble as well as some limestone and granite), agglomerate tiles or resin-backed tiles. Instead, use a suitable epoxy or urethane adhesive.
- Do not spread more material than can be tiled over before ridges skin over.
- If using *NA 3000* additive, do not dilute with any other liquids.
- For light-colored and translucent natural stone, a white mortar is recommended.
- This product has about 2 hours of working time after mixing.

HEALTH AND SAFETY

Consult the (Material) Safety Data Sheet for safe-handling instructions at www.na-adhesives.com.

MIXING

Note: Choose all appropriate safety equipment before use. See the (M)SDS for details.

1. Into a clean mixing container, pour about 5.5 to 6 U.S. qts. (5,20 to 5,68 L) of clean potable water or 2 U.S. gals. (7,57 L) of *NA 3000* additive. 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 5 minutes and until the mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
3. Let the mixture stand ("slake") for 10 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 "Approximate Coverage" chart) with sufficient depth to achieve more than 80% 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 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).

GROUTING

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

MOVEMENT JOINTS

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



CLEANING

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

PROTECTION

- Provide for dry, heated storage on site and deliver materials at least 24 hours before tilework begins.
- Protect from foot traffic for 24 hours. Protect from heavy traffic for 7 days. Protect from frost and rain for 7 days.
- 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 is higher than 70%.

Technical Quick Reference	
Product Characteristics at 73°F (23°C) and 50% relative humidity	
Colors	Gray; white
Packaging	Product code #312050000 Product code #312050001
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*	20 to 30 minutes
Pot life*	> 2 hours
Time before grouting*	24 hours
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
C1 (cementitious, normal adhesion)	≥ 72.5 psi (0,5 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles
ISO 13007 Classification when mixed with <i>NA 3000</i> 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 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)

ANSI Specification when mixed with water		
Test Method	Specification Standard	Test Results
ANSI A118.1 – shear strength, glazed wall tile	> 250 psi (1,72 MPa) at 28 days	270 to 310 psi (1,86 to 2,14 MPa)
ANSI A118.1 – shear strength, quarry tile to quarry tile	> 100 psi (0,69 MPa) at 28 days	190 to 250 psi (1,31 to 1,72 MPa)
ANSI Specification when mixed with <i>NA 3000</i> additive		
Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1,38 MPa) at 28 days	210 to 400 psi (1,45 to 2,76 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2,07 MPa) at 28 days	400 to 700 psi (2,76 to 4,83 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1,03 MPa) at 28 days	400 to 600 psi (2,76 to 4,14 MPa)
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1,03 MPa) at 28 days	200 to 350 psi (1,38 to 2,41 MPa)

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Approximate Coverage* per 50 lbs. (22,7 kg)		
Typical Trowel		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)

* 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 "Application" section).

Industry Standards and Approvals	
LEED Points Contribution	LEED Points
MR Credit 5, Regional Materials**	Up to 2 points
IEQ Credit 4.1, Low-Emitting Materials – Adhesives & Sealants	1 point
IEQ Credit 4.3, Low-Emitting Materials – Flooring Systems	1 point

** 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.



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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.**