



# PERMAFLEX® 500

## Description

ProSpec® PermaFlex 500 is a portland cement based mortar containing a unique dispersible powdered polymer which provides high bond strength, impact strength and extended open time over ordinary sanded thin set mortars. ProSpec PermaFlex 500 is specifically designed for bonding ceramic tile and natural stone to difficult to bond substrates such as exterior grade plywood.

## Features

- C2-E-S1-P1 performance per ISO 13007
- Polymer modified - just add water
- Set most types of ceramic tile or stone
- Superior flexibility and bond strength
- Excellent adhesion to exterior grade plywood
- Excellent overnight bond strength
- Interior or exterior
- Walls, floors or ceilings
- Exceeds ANSI A118.4 for Latex Portland Cement Mortar and A118.11 for EGP Latex Portland Cement Mortar

## Uses

### For installation of:

- Ceramic tile
- Quarry tile
- Pavers
- Marble (except warpable marble)\*
- Glass tile
- Porcelain tile
- Cement tile
- High bottom lugged tile

\* All marble should be tested to be sure discoloration does not occur.

NOTE: Difficult to bond substrates like existing vinyl tile or cutback adhesive require extra preparation. Consult ProSpec's Technical Department.

### For installation over:

- Countertops
- Tile backerboard
- Properly cured and finished concrete
- For other substrates, contact the ProSpec Technical Department
- B-6000 Waterproof Membrane
- Tile over tile
- Exterior grade plywood (interior floors only)
- Cork underlayment
- Properly prepared cutback adhesive

## Technical Data

	Typical Values	ANSI A118.4	ANSI A118.11
<b>Shear Strength to Glazed Wall Tile</b>			
28 days dry	>400 psi (2.8 MPa)	>300 psi (2.1 MPa)	>300 psi (2.1 MPa)
<b>Shear Strength to Porcelain Tile</b>			
28 days dry	>350 psi (2.4 MPa)	>200 psi (1.4 MPa)	>200 psi (1.4 MPa)
<b>Shear Strength to Quarry Tile</b>			
28 days dry	>540 psi (3.7 MPa)	n/a	>150 psi (1.0 MPa)
<b>Shear Strength Quarry Tile to EGP Plywood</b>			
28 days dry	>212 psi (1.5 MPa)	n/a	>150 psi (1.0 MPa)

Tested using 5.2 qts. (4.9 L) of water.

## PERMAFLEX® 500

### Preparation

The substrate must be dry, clean, sound and dimensionally stable. It must be free from loose particles, wax, sealers, curing compounds, grease, paint, and efflorescence. Concrete floors must be fully cured (28 days) and have a fine broom finish.

Apply ProSpec PermaFlex 500 only to surfaces that are frost-free and above 50° F (10° C) for 72 hours.

#### Interior wood subfloors: (Light traffic, residential floors only)

- Double wood floor required
- Maximum joist spacing: 16" (406 mm) on center
- Subfloor: <sup>19</sup>/<sub>32</sub>" exterior grade plywood or 1" (25 mm) nominal boards
- Underlayment: <sup>19</sup>/<sub>32</sub>" exterior grade plywood with 1/8" (6 mm) gaps between sheets. These gaps will be filled with the PermaFlex 500 when it is applied to set the tile. Plywood must be a Group I CC plugged or better.
- Maximum variation in plywood surface shall not exceed 1/4" (3 mm) in 10' (3 m) from required plane.

- Use 6 D ring shank nails in plywood at 6" (152 mm) on center along the sheet edge and at 8" (203 mm) on centers throughout the sheet.
- Overlap all joints of the subfloor.
- Damp mop floor to remove any dust or sawdust. Allow to dry before applying ProSpec PermaFlex.
- Expansion joints are necessary for all installations. All installations must conform to the current specification ANSI A108.5 and the TCA Handbook for ceramic tile installations.

#### Expansion joints shall be located (refer to the TCA Handbook for Ceramic Tile Installation):

- Where tile work abuts restraining surfaces, such as perimeter walls, curbs, columns, dissimilar substrates, pipes and the like.
- Directly over joint in structural floor and over construction or cold joints.
- Directly over expansion or control joints.
- Where specified in the architectural drawing.

NOTE: It is the responsibility of the installer/applicator to ensure the suitability of the product for its intended use.

### Mixing

1. Use cool, potable water, clean tools and clean containers.
2. Add just enough dry powder to the water to produce a thick but trowelable consistency (5 to 6 quarts (3.7 to 5.7 L) per 50 lbs. (22.7 kg)). Too much water will cause the mortar to have reduced strength. Troweled ridges should not flow or slump.
3. Mix thoroughly. Let stand 10 minutes to give all chemicals time to slake. Remix and use. Do not add more water or dry materials after slaking.
4. Do not mix with a high-speed power mixer. High speed mixing tends to beat in air and reduces the strength of the mortar.
5. Do not add latex. Mix with water only.
6. Working life in the bucket is approximately 2-3 hours.

## PERMAFLEX<sup>®</sup> 500

### Application

All installations must conform to the current specification in ANSI A108.5 and the TCA Handbook for Ceramic Tile Installations.

1. Select the proper trowel size.

The proper trowel is one that will insure a minimum of  $\frac{3}{32}$ " (2 mm) layer of mortar between the tile and substrate after the tile has been set. The proper trowel should also result in a minimum of 80% coverage for interior or dry areas and 95% coverage for exterior or wet areas.

2. With pressure, apply a skim coat to the substrate with the flat edge of the trowel.

3. Comb additional mortar in one direction, with the recommended notched trowel, spread only enough mortar that can have tile put on it before skinning occurs. If skinning occurs, scrape and discard skinned mortar.
4. Press tile into place and slide perpendicular to the ridges to insure proper coverage.
5. Tile may be adjusted up to 15 minutes after placing.
6. Tile floor must be firmly set before grouting. This requires at least 24 hours.
7. Grout with ProSpec<sup>®</sup> Unsanded Tile Grout, ProSpec Sanded Tile Grout or ProSpec B-7000 Epoxy Grout.
8. Clean all tools with soapy water before mortar dries.

### Best Performance

- Mortars should not be applied to substrates that are below 50° F (10° C), nor should the mortar be exposed to freezing conditions during the first 72 hours of curing.
- All materials should be stored at 40° F (4° C) 24 hours prior to installation.
- Do not adjust tile after mortar takes its initial set or the bond will be permanently broken.
- Never add water or dry material after the thin set mortar has slaked. This causes shrinkage and results in poor bond.
- Do not soak tile.
- Do not use worn trowels. After tile beat in, a minimum of 80% coverage is required for interior applications and 95% for exterior applications.
- Add only cool, potable water to ProSpec PermaFlex 500 mortar.
- Do not allow traffic on freshly installed tile for 24 hours.
- At cooler temperatures set time will be extended

### Colors

White and gray

### Coverage

Coverage per 50 lb. (22.7 kg) bag:

$\frac{1}{4}$ " x  $\frac{1}{4}$ " x  $\frac{1}{4}$ " notch trowel covers approximately 100 to 110 ft<sup>2</sup> (9 to 10 m<sup>2</sup>)

$\frac{1}{4}$ " x  $\frac{1}{4}$ " x  $\frac{3}{8}$ " notch trowel covers approximately 80 to 85 ft<sup>2</sup> (7 to 8 m<sup>2</sup>)

$\frac{1}{2}$ " x  $\frac{1}{2}$ " x  $\frac{1}{2}$ " notch trowel covers approximately 50 to 55 ft<sup>2</sup> (4 to 5 m<sup>2</sup>)



# PERMAFLEX® 500

## Packaging

50 lb. (22.7 kg) bag

## Shelf Life

One year from the date of manufacture when stored in the original closed container away from moisture.

## Caution

KEEP OUT OF REACH OF CHILDREN AND ANIMALS. WARNING!  
MAY CAUSE SKIN AND EYE BURNS OR IRRITATION.  
INHALATION IS KNOWN TO CAUSE CANCER OR DELAYED LUNG INJURY.  
Avoid contact with eyes and skin. This product contains hydraulic cement and lime. When mixed

with water and/or latex, it results in a solution that is highly alkaline and may burn or irritate the eyes or skin. Wear safety glasses or goggles, protective clothing, shoes and gloves to prevent eye and skin contact. Do not take internally.  
Avoid breathing dust. This product contains crystalline silica. Prolonged exposure to crystalline silica dust is known to cause lung

cancer or delayed lung injury, including silicosis. Take measures to eliminate or control dust while handling or placing this product. Wear a respirator approved for protection against crystalline silica dust.  
Crystalline silica has been classified by IARC and NTP as a carcinogen.

## First Aid

If swallowed, drink one or two glasses of water to dilute. Do not induce vomiting unless directed to do so by medical personnel. SEEK IMMEDIATE MEDICAL ATTENTION. In case of contact, flush eyes or skin thoroughly for a minimum of 15 minutes with clean water and get prompt medical

attention. Wash clothing and thoroughly clean shoes before reuse.  
For additional information, call Bonsal American at 704-525-1621 or CHEMTREC at 800-424-9300 or 703-527-3887 outside of the USA.

Refer to Material Safety Data Sheet (MSDS) for further information.

LIMITED 1 YEAR WARRANTY FROM DATE OF MANUFACTURE: Bonsal American warrants that this product and the materials used therein meet or exceed the applicable standards listed and enforced at the time of manufacture. Bonsal American will replace any product or part which proves defective due to quality of ingredients used or due to the manufacturing process itself. This Warranty shall apply only if the product is used in strict accordance with applicable specifications and instructions provided by Bonsal American for its use, and Bonsal American shall not be liable otherwise. Replacement of any defective product, or, at Bonsal American's option, refund of the purchase of any defective product shall be the buyer's sole remedy under this Warranty, and Bonsal American shall in no event be liable for any damages in excess of the purchase price of the defective product. BONSAL AMERICAN SHALL IN NO EVENT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES INCLUDING LOSS OF PROFITS OF ANY KIND. Product demonstrations are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. This Warranty constitutes the sole warranty given by Bonsal American in connection with this product. No modification of this Warranty in favor of any buyer shall be valid unless given in writing and signed by an officer of Bonsal American. Bonsal American has authorized no person to make or give any other warranties or representation, oral or written on its behalf. IN PARTICULAR, THERE ARE NO IMPLIED WARRANTIES, INCLUDING WITHOUT EXCEPTION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.