

1. PRODUCT NAME

ProSpec® PermaFlex® 400

2. MANUFACTURER

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3. PRODUCT DESCRIPTION

ProSpec® PermaFlex® 400 is a one-component, polymer-modified, tile setting mortar for interior and exterior installations of many tile types, including porcelain, ceramic, quarry tile and dimensional stone. It can be used over a variety of substrates including concrete and exterior grade plywood.

Features and Benefits

- Polymer-modified, just add water
- Used to install over most substrates, including exterior grade plywood
- Good workability
- Interior or exterior
- For commercial floors and residential floors and walls
- Good bond strength
- Meets ANSI A118.4, A118.11 and ISO 13007 C2P1

Uses

For installation of:

- Porcelain tile
- Ceramic tile
- Quarry tile
- Non-moisture sensitive natural stone*
- Cement tile and pavers
- High bottom lugged tile

*All natural stone should be tested to be sure discoloration does not occur.

For installation over:

- Properly cured and finished concrete
- Cured portland cement mortar
- Cement backer unit (CBU)
- Exterior grade plywood (interior floors only) - 16" (41 cm) on center (OC) max
- B-6000 Waterproof / Crack Isolation Membrane
- Gypsum plaster or gypsum board (dry areas: wall only)

Note: For other substrates, contact ProSpec® Technical Services.

SAFETY

READ THE SAFETY DATA SHEET (SDS) BEFORE USING THIS PRODUCT. SDS Sheets are available on our website prospec.com or contact Medical Emergency Phone Number (24 Hours): 1-888-853-1758, Transport Emergency Phone Number (CHEMTREC): 1-800-424-9300 or contact ProSpec® Technical Services at 1-800-832-9023 (7:00AM to 5:00PM M-F, Central US Time).

CAUTIONS

Read complete cautionary information printed on product container prior to use. For medical emergency information, call 1-888-853-1758.

This Product Data Sheet has been prepared in good faith on the basis of information available at the time of publication. It is intended to provide users with information about and guidelines for the proper use and application of the covered ProSpec® brand product(s) under normal environmental and working conditions. Because each project is different, H.B. Fuller Construction Products Inc. cannot be responsible for the consequences of variations in such conditions, or for unforeseen conditions.

4. TECHNICAL DATA

ProSpec® PermaFlex® 400	Time	Typical Values	ANSI A118.4
Shear Strength to Glazed Tile	7 days dry	> 510 psi (3.5 MPa)	> 300 psi (2.1 MPa)
Shear Strength to Porcelain Mosaic Tile	28 days dry	> 300 psi (2.1 MPa)	> 200 psi (1.4 MPa)
Shear Strength to Quarry Tile	28 days dry	> 360 psi (2.5 MPa)	> 150 psi (1.0 MPa)
Shear Strength Quarry Tile to EGP Plywood	28 days dry	> 150 psi (1.0 MPa)	> 150 psi (1.0 MPa)

Greater than: > Greater than or equal to: ≥ Less than: < Less than or equal to: ≤

Note: Test results obtained under controlled laboratory conditions at 72°F (22°C) and 50% relative humidity. Tested using 5.27 qt. (5.0 L) water per 50 lb (23 kg) bag. Reasonable variations can occur due to atmospheric and job site conditions.

LEED® Eligibility¹

- Regional Materials (MR-c5)
- Low-Emitting Materials (IEQ-c4.1, IEQ-c4.3)

Packaging

Gray: 50 lb (22.7 kg) bag – Product #65252890
White: 50 lb (22.7 kg) bag – Product #65252900

Shelf Life

12 months from the date of manufacture when stored in the original, unopened container, away from moisture, under cool, dry conditions and out of direct sunlight.

5. INSTALLATION

Preparation

- Surface must be clean, dry, hard, and free from dirt, loose particles, wax, sealers, curing compounds, grease, paint, efflorescence and any foreign materials that will inhibit adhesion.
- Walls and floors must be structurally sound, free of movement and dimensionally stable.
- Surfaces to receive tile shall be plumb and true with square corners. Maximum variation from the required plane shall be: Subfloor Surfaces – 1/4" (6 mm) in 10' (3 m) for tile less than 15" (381 mm) on any one side and the required plane shall be 1/8" (3 mm) in 10' (3 m) for tile 15" (381 mm) or greater on any one side.
- Concrete floors must be fully cured (28 days) and have a fine broom finish. Smooth troweled surfaces should be scarified to assure bond. Sprinkle water on the substrate in various areas looking for penetration. If water droplet or beading of water is noticed then surface contaminants are present that will cause loss of adhesion and must be removed. Inspect surfaces that will receive the tile and the tools used to install it.

Notify the architect or other designated authority in writing of any defects or conditions that prevent a satisfactory tile installation. (See ANSI A108.5)

In case of truing or leveling the work of others, use ProSpec® Floor Patch Pro, a ProSpec® Level Set® Self-Leveling Underlayment or ProSpec® Vinyl Concrete Patch.

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

Exterior Grade Plywood Subfloor - See the most current edition of the TCNA Methods Handbook F150.

- Double wood floor required.
- Maximum joist spacing: 16" (41 cm) OC.
- Subfloor: 19/32" (15 mm) exterior grade plywood or 1" (25 mm) nominal boards.
- Underlayment: 19/32" (15 mm) exterior grade plywood with 1/8" (6 mm) gaps between sheets. These gaps will be filled with the PermaFlex® 400 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) OC along the sheet edge and at 8" (203 mm) OC 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® 400.

Note: For joist spacing greater than 16" (41 cm) OC: See [TCNA Methods Handbook](#) or contact ProSpec® Technical Services.

Expansion joints are necessary for all installations. Expansion joints shall be located (refer to the [TCNA Handbook for Ceramic Tile Installation Detail EJ171](#)):

- Where tile work abuts restraining surfaces, such as perimeter walls, curbs, columns, pipes and the like.
- Directly over joints in structural floors and over construction or cold joints.
- Directly over expansion or control joints.
- Where specified in the architectural drawing.
- All materials should be stored at 40°F (4°C) to 80°F (27°C) 24 hours prior to installation.

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

Job Mockups

The manufacturer requires that when its ProSpec® products are used in any application or as part of any system that includes other manufacturers' products, the contractor and/or design professional shall test all the system components collectively for compatibility, performance and long-term intended use in accordance with pertinent and accepted industry standards prior to any construction. Written documentation of the tests performed shall be satisfactory to the design professional and contractor. Test results must include the means and methods of application, products used, project-specific conditions being addressed, and standardized tests performed for each proposed system or variation.

Mixing

1. Use cool, clean potable water. Always use clean tools and mixing containers.
2. Add just enough dry powder to the liquid to produce a thick but trowelable consistency (5 - 6 qt (4.7 - 5.7 L)) per 50 lb (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 ingredients time to slake. Remix and use. Do not add more water or powder after slaking is complete. This causes shrinkage and results in poor bond.
4. Do not mix with a high-speed power mixer. High speed mixing tends to beat in air and reduce the strength of the mortar.
5. The bucket life is approximately 2 - 3 hours, warmer temperatures will reduce bucket life.

Application

Apply only to surfaces that are frost free and above 40°F (4°C) and below 100°F (38°C) within 24 hours of application and 72 hours thereafter. Installation must conform to the current specifications in ANSI A108.5 and the TCNA Handbook for Ceramic Tile Installations.

1. Select the proper trowel size. The proper trowel is one that will insure a minimum of 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% for exterior, wet areas or with marble or natural stone installations.
2. With pressure, apply a skim coat to the substrate with the flat edge of the trowel.
3. Comb the mortar in one direction, with the recommended notched trowel. Apply mortar only on sections that can receive tile before skinning. If skinning occurs, scrape and discard skinned mortar.
4. Press tile into place and slide perpendicular to the combed ridges to insure proper coverage.
5. Tile may be adjusted up to 15 minutes after placing.
6. Tile must be firmly set before grouting. This requires at least 16 - 24 hours. At cooler temperatures set times will be extended.
7. Grout with ProSpec® ProColor Sanded Grout, ProSpec® ProColor Unsanded Grout or ProSpec® B-7000 Epoxy Mortar & Grout.
8. Clean all tools with soapy water before mortar dries.

Limitations

- Do not add latex.
- Do not adjust tile after mortar takes its initial set or the bond will be permanently broken.
- Do not soak tile.
- Do not use worn trowels. It is important to have the ridges of the tile setting mortar the full depth of the trowel notches.
- Do not allow traffic on freshly installed tile for 24 hours.
- Do not allow heavy traffic until 72 hours after installation.
- Do not use over masonite, particle board, luan, plastic, vinyl asbestos tile or painted surfaces.
- Do not use over wood other than exterior grade plywood (EGP).

Coverage

Coverage per 50 lb (22.7 kg) bag:

ProSpec® PermaFlex® 400 Notch Trowel Size	Approximate Coverage
1/4" x 1/4" x 1/4" notch trowel	100 - 110 ft ² (9.3 - 10.2 m ²)
1/4" x 1/4" x 3/8" notch trowel	80 - 85 ft ² (7.4 - 7.9 m ²)

6. AVAILABILITY

To locate ProSpec® products in your area, please contact:

Phone: 800-832-9002

Website: prospec.com

7. WARRANTY

For warranty details, see your sales associate or prospec.com

8. MAINTENANCE

Not applicable

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the Technical Support Hotline.

Toll Free: 800-832-9023

Fax: 630-952-1235

Technical and safety literature

To acquire technical and safety literature, please visit our website at prospec.com

10. FILING SYSTEM

Division 9

¹ ProSpec® products can contribute to LEED® credits within the Material Resource, (Recycled Content & Regional Materials) and Indoor Environmental Quality (Low Emitting Materials).

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Data Sheets are subject to change without notice. For the latest revision, check our website at prospec.com



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