

# CONCRETE SUBSTRATE FLATWORK AND MOISTURE MITIGATION







# Moisture Control

Successful floor installations are based on preparing the subfloor to the proper level or flatness as well as mitigating any potential problems due to moisture vapor emissions. Having a smooth, flat and level subfloor will simplify virtually any floor installation and reduce adhesive demand. And mitigating moisture issues before they happen will protect your flooring investment as well as

allow for fast-track installation practices – without the worry of compromising adhesive performance at elevated levels of concrete moisture.

MAPEI provides a complete and robust offering of products designed to create the perfect moisture-protected substrate for your next flooring installation.

	Surface profiling requirements	Reduction of moisture vapor emission rate and relative humidity	Curing time at 73°F (23°C)
 <p><b>Planiseal® VS</b> Alkali-resistant, epoxy moisture-reduction barrier</p>	No profiling required*	To control up to 25 lbs. (11,3 kg) MVER and 100% RH (no limits)	8 to 9 hours
 <p><b>Planiseal VS Fast</b> Fast-track, alkali-resistant, epoxy moisture-reduction barrier</p>	No profiling required*	To control up to 25 lbs. (11,3 kg) MVER and 100% RH (no limits)	4 to 6 hours
 <p><b>Planiseal PMB</b> Polyurethane moisture barrier and bonding agent</p>	No profiling required*	To control up to 25 lbs. (11,3 kg) MVER and 100% RH (no limits)	2 to 3 hours (first coat), 4 hours (second coat)
 <p><b>Planiseal MSP</b> Moisture-control membrane, adhesive isolator, sealer, pH blocker and primer</p>	Concrete must be porous, with an ICRI concrete surface profile of at least #1	To control up to 15 lbs. (6,80 kg) MVER and 99% RH	1 to 3 hours (first coat), 4 hours (second coat)

\* For direct application without mechanical profiling, concrete must be porous, be in pristine condition with zero contamination, and have an ICRI concrete surface profile of #2 to #3. If these conditions are not present, mechanical profiling is required. Mechanically prepare the surface using dustless, engineer-approved methods to obtain a CSP of #2 to #3.



Planiseal VS Fast

# Primers



	<b>Primer L™</b> Advanced-technology acrylic latex primer for concrete	<b>Primer T™</b> All-purpose primer for self-leveling underlayments	<b>Primer WE™</b> Water-based epoxy primer	<b>Primer E™</b> High-performance, 100%-solids epoxy primer	<b>Primer CE™</b> Ultra low-viscosity, consolidating epoxy primer	<b>Planibond® EBA</b> High-modulus epoxy bonding agent	<b>ECO Prim Grip™</b> Multipurpose bond-promoting primer	<b>Planiseal® MSP</b> Moisture-control membrane, adhesive isolator, sealer, PH blocker and primer	<b>Planiseal PMB</b> One-component, polyurethane moisture barrier and bonding agent
<b>For absorbent concrete</b>	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
<b>For nonabsorbent concrete</b>	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No
<b>For gypsum</b>	Yes	Yes	No	No	Yes	No	Yes	Yes	No
<b>For exterior-grade plywood</b>	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
<b>For ceramic</b>	No	Yes	Yes	Yes	No	Yes	Yes	No	No
<b>For VCT</b>	No	Yes	Yes	Yes	No	Yes	Yes	No	No
<b>For terrazzo</b>	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No
<b>For steel</b>	No	No	No	Yes	No	Yes	No	No	No
<b>For epoxy moisture barriers</b>	No	Yes	Yes	Yes	No	Yes	Yes*	No	No
<b>Curing time at 73°F (23°C)</b>	3 hours	2 to 5 hours	> 2 hours	6 to 7 hours	5 to 6 hours	2 to 3 hours	2 to 3 hours	6 hours	6 hours
<b>Window for installing self-leveling materials</b>	3 to 18 hours	Up to 24 hours	2 to 18 hours	Next day	Next day	24 hours	24 hours	24 hours	24 hours

\* For applications of self-levelers greater than 1/4" (6 mm) thick over epoxy moisture barriers, use Primer E or Planibond EBA with a sand broadcast.



# Self-Leveling Underlayments








	Requires surface profiling	Single-lift application range	Waiting time before installation		Compressive strength *
			Ceramic, tile and stone	Carpet, resilients and wood	
 <b>Planitex™ SL</b> High-flow, gypsum self-leveling underlayment	No	1/8" to 1" (3 mm to 2,5 cm)	**	**	> 4,640 psi (32 MPa)
 <b>Planitex SLF</b> Fiber-reinforced, gypsum self-leveling underlayment	No	1/8" to 1" (3 mm to 2,5 cm)	**	**	> 5,655 psi (39 MPa)
 <b>Novoplan® SP</b> Standard-performance self-leveling underlayment	Yes	1/8" to 1/2" (3 to 12 mm) neat, or up to 1" (2,5 cm) with aggregate	16 hours	36 hours	> 3,600 psi (24,8 MPa)
 <b>Novoplan 2 Plus</b> Professional self-leveling underlayment	Yes	1/8" to 1" (3 mm to 2,5 cm)	16 hours	36 hours	> 4,200 psi (29,0 MPa)
 <b>Novoplan Easy Plus</b> Easy-preparation, self-leveling underlayment	No	Featheredge to 1" (2,5 cm)	16 hours	36 hours	> 3,500 psi (24,1 MPa)
 <b>Ultraplan® 1 Plus</b> High-performance, quick-setting, self-leveling underlayment	Yes	Featheredge to 1-1/2" (3,8 cm)	4 hours	16 to 24 hours	> 4,150 psi (28,6 MPa)
 <b>Ultraplan Easy</b> High-performance, easy-preparation, self-leveling underlayment	No	Featheredge to 2" (5 cm)	3 hours	16 to 24 hours	> 4,100 psi (28,3 MPa)
 <b>Ultraplan M20 Plus</b> Quick-setting, high-compressive-strength underlayment	Yes	1/8" to 2" (3 mm to 5 cm)	3 to 6 hours	16 to 24 hours	> 5,000 psi (34,5 MPa)
 <b>Ultraplan Lite</b> Lightweight, self-leveling underlayment	Yes	1/8" to 2" (3 mm to 5 cm)	5 to 6 hours	48 to 72 hours	> 3,500 psi (24,1 MPa)
 <b>Ultraplan LSC</b> High-flow, fast-setting, self-leveling liquid skimcoat	Yes	1/16" to 1/2" (1,5 to 12 mm)	4 hours	16 to 24 hours	> 4,150 psi (28,6 MPa)
 <b>Ultraplan QuickTraffic</b> Extremely fast-setting, self-leveling underlayment	Yes	1/8" to 1/2" (3 to 12 mm)	1 to 2 hours	2 to 3 hours	> 7,250 psi (50 MPa)
 <b>Ultraplan Extreme 2</b> Weather-resistant, high-compressive-strength, self-leveling underlayment	Yes	1/8" to 1" (3 mm to 2,5 cm)	3 to 6 hours	24 to 36 hours	> 5,600 psi (38,6 MPa)

\* Compressive strength at 28 days – ASTM C109 (CAN/CSA-A5)

\*\* Because of variability in the depth of pour, temperature and humidity, verify that Planitex SL or Planitex SLF is appropriately dry by performing a moisture test with a Delmhorst Model G-79 or BD-2100 meter (set to the gypsum scale). With reliable, properly calibrated equipment, the floor is considered ready for application of floor coverings when the calibrated meter reads 5% or less.



# Patching and Skimcoating Compounds

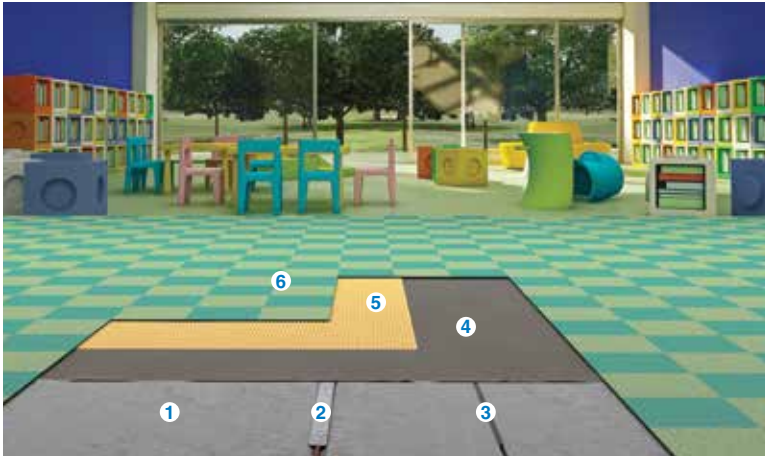
	Thickness of repair	Waiting time before installation		Compression strength*
		Ceramic, tile and stone	Carpet, resilients and wood	
 <b>Planitex™ UNS</b> Standard gypsum-based floor-patching compound	Featheredge to 1/2" (12 mm)	40 to 60 minutes	40 to 60 minutes	N/A
 <b>Planipatch®</b> Fast-setting, polymer-modified, cement-based patching compound	Featheredge to 1/2" (12 mm) with water, or to 1/4" (6 mm) with <i>Planipatch Plus®</i>	1 hour	1 hour	> 3,500 psi (24,1 MPa)
 <b>Planiprep™ SC</b> High-performance, fiber-reinforced skimcoating compound	Featheredge to 1" (2,5 cm)	30 to 60 minutes	30 to 60 minutes	N/A
 <b>Planiprep MRS</b> Moisture-resistant, high-compressive-strength skimcoating compound	Featheredge to 1/4" (6 mm)	2 hours	6 hours	> 5,600 psi (38,6 MPa)
 <b>Mapecem® Quickpatch</b> High-performance, concrete patch	Featheredge to 1" (2,5 cm)	45 to 60 minutes	16 hours	> 4,000 psi (27,6 MPa)
 <b>Topcem™ Premix</b> Ready-to-use, accelerated-cure screed	1/4" to 4" (6 mm to 10 cm)	24 hours	48 hours	> 3,000 psi (20,7 MPa)
 <b>Mapecem Premix</b> Fast-setting screed mortar	1/4" to 4" (6 mm to 10 cm)	3 to 4 hours	16 to 18 hours	> 4,000 psi (27,6 MPa)

\* Compressive strength at 28 days – ASTM C109 (CAN/CSA-A5)



# Sample System Solutions of Flatwork Installations

## Standard concrete repair



Not all slabs exhibit moisture emission problems, but virtually none of them are smooth and flat. MAPEI's subfloor-preparation products can handle everything from trench and hole filling, to rapid control joint and crack filling, to skimcoating for a perfectly smooth surface.

- 1 Concrete subfloor
- 2 Mapecem® Premix
- 3 Planipatch®
- 4 Planiprep™ SC
- 5 Ultrabond ECO® 711
- 6 VCT

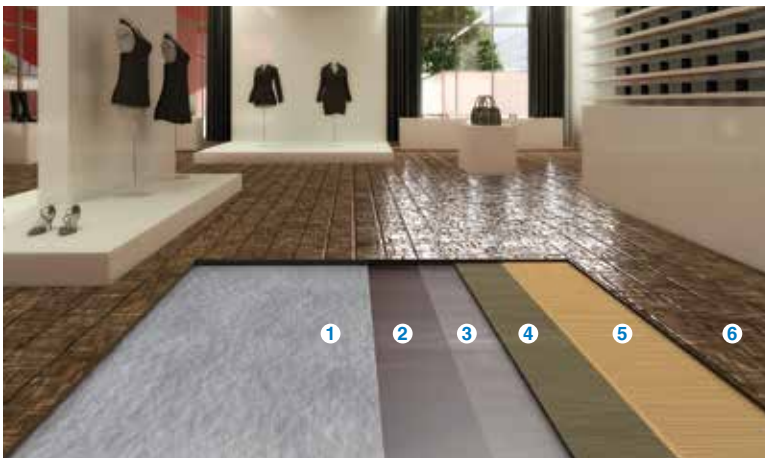
## Standard moisture control and skimcoating



To protect your flooring from the ravages of subfloor moisture as well as to expedite floor-covering installation, start with a moisture-control membrane. Not only will this protect your new floor from potential moisture issues, it will allow you to install that floor in weeks, if not months, before concrete can sufficiently dry enough under normal evaporative conditions. The moisture barrier can be primed and then skimcoated to handle any slight surface defects as well as create a somewhat porous substrate for adhesive bonding.

- 1 Concrete subfloor (shotblasted)
- 2 Planiseal® VS
- 3 Primer T™
- 4 Planiprep™ SC
- 5 Ultrabond ECO® 360
- 6 Vinyl plank

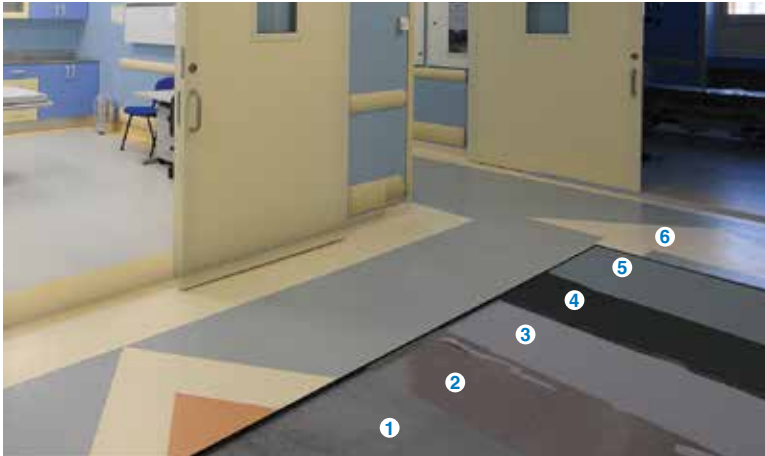
## Standard moisture control and leveling



For commercial, retail and residential flooring installations, having a level and moisture-free substrate simplifies the installation process, protecting even the most moisture-sensitive flooring materials (such as wood and bamboo) from failure. Industry standards for substrate flatness are generally less than 3/16" to 1/8" (4,5 to 3 mm) variation within 10 feet (3,05 m) for virtually any type of flooring material. Rarely is a substrate that flat. MAPEI's solutions for moisture control and leveling are perfectly designed for floor installations of moisture-sensitive ceramic tile, resilient, carpet and wood flooring.

- 1 Concrete subfloor (shotblasted)
- 2 Planiseal® VS
- 3 Primer T™
- 4 Novoplan® 2 Plus
- 5 Ultrabond ECO® 980
- 6 Wood flooring

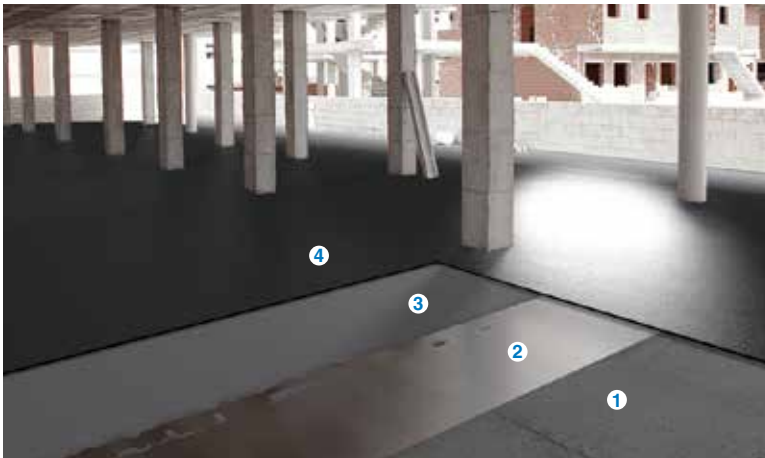
## High-performance, time-sensitive moisture control and leveling



Time is of the utmost importance on critical floor renovation projects, especially when the floor is associated with a high-revenue or life-critical business. MAPEI's fast-track system solution of moisture control, subfloor prep and bonding helps to shave hours off the installation process compared to traditional methods.

- 1 Concrete subfloor (shotblasted)
- 2 Planiseal® VS Fast
- 3 Primer T™
- 4 Ultraplan® QuickTraffic
- 5 Ultrabond® G15
- 6 Solid vinyl flooring

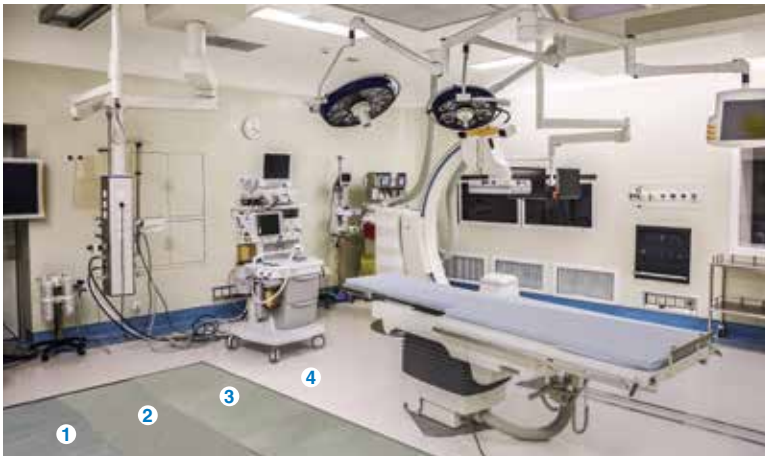
## Fast-track moisture control and leveling in open environments



Some installation conditions just cannot be controlled. That is why MAPEI has developed subfloor preparation solutions for substrates that are open to the environment or not under traditional HVAC system control. These solutions also provide high-compression, temporary-wear surfaces that allow for other trades to complete their work, yet will be ready for floor coverings months in advance of the normal concrete-drying process.

- 1 Concrete subfloor (shotblasted)
- 2 Planiseal® VS Fast
- 3 Primer T™ or Primer E™ with sand broadcast
- 4 Ultraplan® Extreme 2

## Fast-track skimcoating and bonding in high-performance environments



Time is often too short to retrofit or even initially install floor covering in situations where moisture levels are well above the limits of traditional methods. Using MAPEI-engineered materials specifically designed for performance without respect to moisture levels\* puts time back in your control and allows for installations to proceed at top speed without installing complete moisture-barrier systems.

- 1 Concrete subfloor
- 2 Planiprep™ MRS
- 3 Ultrabond® G15
- 4 Solid vinyl flooring

\* Not recommended for use in areas with known hydrostatic water/moisture problems

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For the most current BEST-BACKED<sup>SM</sup> product data and warranty information, visit [www.mapei.com](http://www.mapei.com).

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