








# Concrete substrate flatwork and moisture mitigation

# Moisture mitigation

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)
 <b>Planiseal® VS</b> Alkali-resistant, epoxy moisture-reduction barrier	CSP #3 to #4	To control up to 25 lbs. (11.3 kg) MVER and 100% RH (no limits)	8 to 9 hours
 <b>Planiseal VS Fast</b> Fast-track, alkali-resistant, epoxy moisture-reduction barrier	CSP #3 to #4	To control up to 25 lbs. (11.3 kg) MVER and 100% RH (no limits)	4 to 6 hours
 <b>Planiseal PMB</b> One-component, polyurethane moisture barrier and bonding agent	Clean and porous, or CSP #1 to #2	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)
 <b>Planiseal MSP</b> Moisture-control membrane, adhesive isolator, sealer, pH blocker and primer	Clean and porous, or CSP #1	To control up to 15 lbs. (6.80 kg) MVER and 99% RH	1 to 3 hours (first coat), 4 hours (second coat)
 <b>Planiseal Max</b> High-performance, one-component, textured, moisture vapor barrier and primer	Clean and porous, or CSP #1	To control up to 25 lbs. (11.3 kg) MVER and 100% RH (no limits)	30 minutes (first coat), 1 to 2 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>ECO Prim Grip™</b> Multipurpose bond-promoting primer	<b>Primer X™</b> Fast-drying, textured primer for nonporous substrates	<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>Planiseal Max</b> High-performance, one-component, textured, moisture vapor barrier and primer
<b>For absorbent concrete</b>	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>For nonabsorbent concrete</b>	No	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
<b>For gypsum</b>	Yes	Yes	No	No	Yes	Yes	No	Yes	No	No
<b>For exterior-grade plywood</b>	No	Yes	Yes	Yes	No	Yes	No	Yes	No	Yes
<b>For ceramic</b>	No	Yes	Yes	Yes	No	Yes	No	No	No	No
<b>For VCT</b>	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No
<b>For terrazzo</b>	No	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No
<b>For steel</b>	No	No	No	Yes	No	No	No	No	No	No
<b>For epoxy moisture barriers</b>	No	Yes	Yes	Yes	No	No	Yes	No	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	1 to 2 hours	6 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	24 hours



ECO Prim Grip



Primer CE



# Self-leveling underlayments









		Requires surface profiling	Single-lift application range	Waiting time before installation		Compressive strength*
				Ceramic, tile and stone	Carpet, resilient and wood	
	<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> (Canada only) Standard-performance, self-leveling underlayment	No***	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	No***	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>Novoplan DPL</b> Deep-pour, self-leveling underlayment	Yes	1/4" to 4" (6 mm to 10 cm)	24 hours	48 to 72 hours	3,500 psi (24.1 MPa)
	<b>Novoplan HFL</b> High-flow, self-leveling compound	No***	1/16" to 1-1/2" (1.5 to 3.8 cm)	3 hours	16 to 24 hours	> 5,000 psi (34.5 MPa)
	<b>Ultraplan® 1 Plus</b> High-performance, quick-setting, self-leveling underlayment	No***	Featheredge to 1-1/2" (3.8 cm)	4 hours	16 to 24 hours	5,000 psi (34.5 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 HFL</b> High-flow, fast-setting, self-leveling compound	No**	1/16" to 1" (1.5 mm to 2.5 cm)	3 hours	12 hours	> 6,000 psi (41.4 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 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 Modified

\*\* 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.

\*\*\* For areas exposed to high traffic and heavy rolling loads, a CSP of #2 to #3 is required.

# Patching and skimcoating compounds

	Thickness of repair	Waiting time before installation		Compression strength*
		Ceramic, tile and stone	Carpet, resilient and wood	
 <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 Planipatch Plus®	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 PSC</b> Moisture-resistant, fast-drying patch and skimcoating compound	Featheredge to 1/2" (12 mm)	30 to 90 minutes	30 to 90 minutes	3,250 psi (22.4 MPa)
 <b>Planiprep RMP</b> Moisture-resistant, fast-drying, ramping compound	Featheredge to 2" (5 cm)	90 minutes	90 minutes	4,250 psi (29.3 MPa)
 <b>Planiprep 4 LVT</b> High-moisture-resistant skimcoat and embossing leveler	Featheredge to 1/16" (1.5 mm)	2 hours	2 hours	N/A
 <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> Accelerated-cure screed	1/4" to 4" (6 mm to 10 cm)	24 hours	48 hours	> 3,000 psi (20.7 MPa)
 <b>Planislope™ RS</b> Rapid-setting, polymer-modified sloping mortar	1/4" to 3" (6 mm to 7.5 cm)	1 to 2 hours	N/A	4,000 to 5,000 psi (27.6 to 34.5 MPa)

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



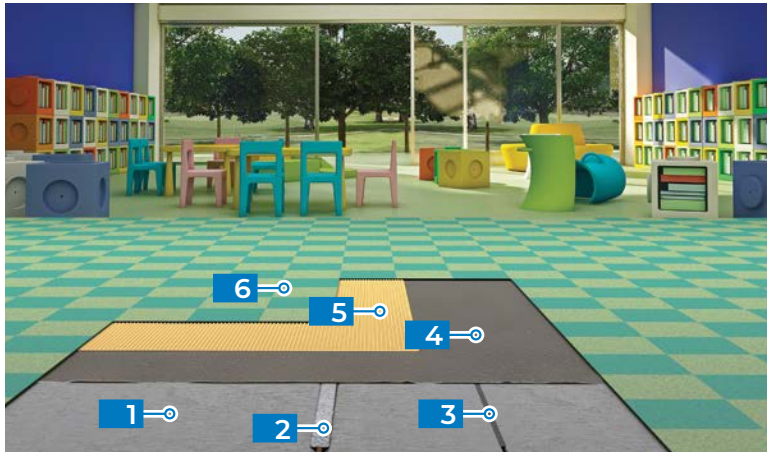
**Ultraplan Extreme 2**



**Planiprep RMP**

# Sample system solutions of flatwork installations

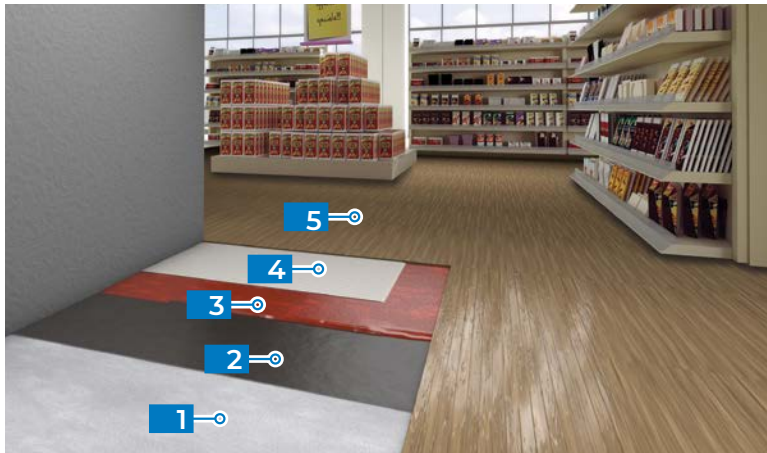
## Standard concrete repair



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 filling of control joints and cracks, to skimcoating for a perfectly smooth surface.

- 1 Concrete subfloor
- 2 **Planiprep RMP**
- 3 **Planipatch®**
- 4 **Planiprep® PSC**
- 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 **Planiprep® PSC**
- 3 **Planiseal® MSP**
- 4 **Ultrabond ECO® 399**
- 5 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 X™**
- 4 **Novoplan® 2 Plus**
- 5 **Ultrabond ECO® 980**
- 6 Wood flooring



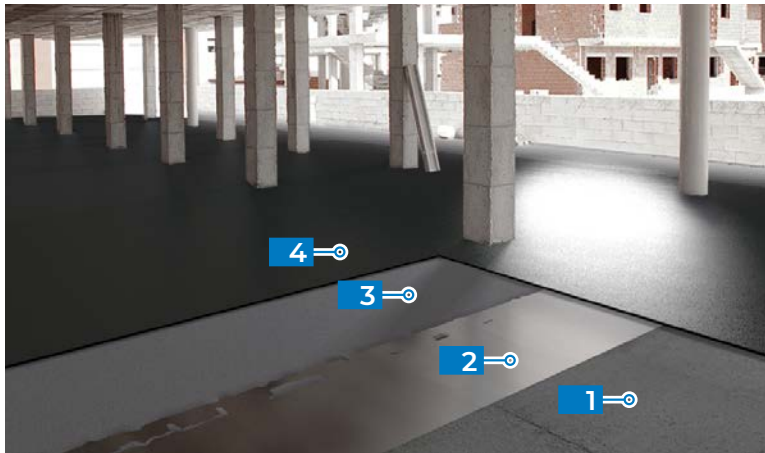


**Planiprep 4 LVT**



**Planiprep SC**

## 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 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® 4 LVT**
- 3 **Ultrabond ECO® MS 4 LVT**
- 4 Solid vinyl flooring

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



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