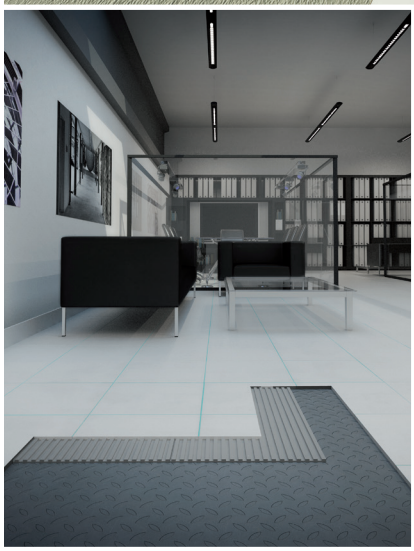
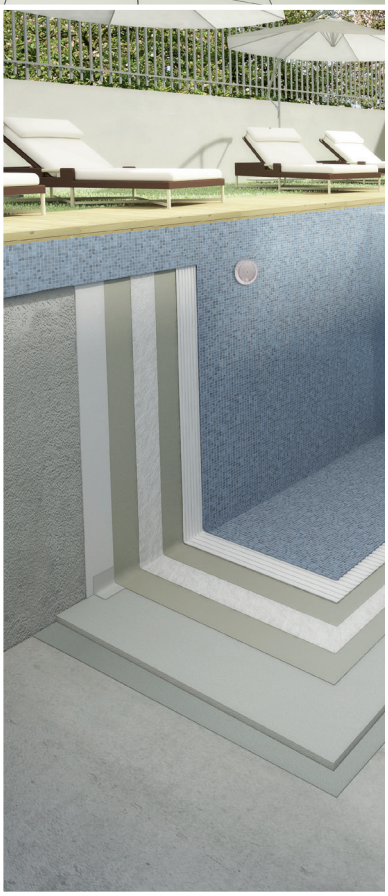
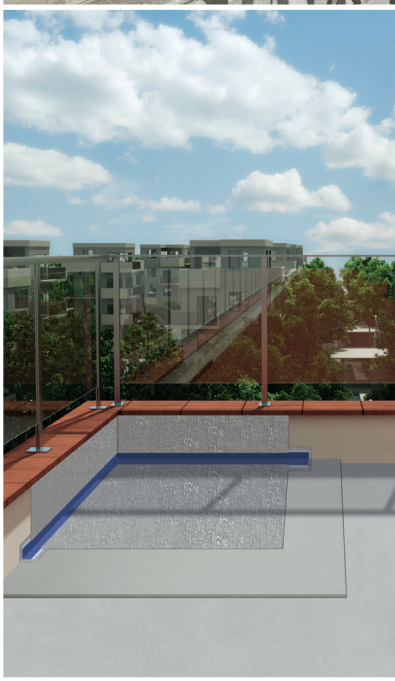
CERAMIC AND STONE SYSTEMS AND WORK METHOD STATEMENTS



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ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

CERAMIC & STONE INSTALLATIONS

Quick links to System Graphics and Work Method Statements

6th August 2020

SYSTEM FOR THE **INSTALLATION OF TILES OVER UNEVEN CONCRETE**

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GREEN INNOVATION

MAPEI®

C01

concrete substrate	*primer* **Eco Prim T Plus**	*levelling compound* **UC Leveller**	*adhesive* **Ultralite S1**	*grout* **Ultracolor Plus**	*sealant* **Mapesil AC**
1	**2**	**3**	**4**	**5**	**6**

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

08/17 REV 1

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

B. ***MAPEI Technical Notebook(s):***

1. Laying Stone Materials
2. Guide for the Installation of Ceramic Materials
3. Systems for Installing Thin Porcelain Tiles

C. ***Other References:***

1. ASAA Natural Stone Manual

1.2 CONCRETE SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 LEVELLLING MATERIAL

Levelling material to be chosen from the following options:

A. **ADESILEX P4 (107-7-2017 AUS) – Smoothing mortar**

1. High performance, rapid-setting, full contact, cementitious adhesive for ceramic tile and stone material installations; smoothing compound for interiors and exteriors; mortar for brick and concrete block walls.

- **APPLICATION:**
  - ◊ Apply using an appropriate trowel, as specified on the TDS.

B. **TOPCEM PRONTO (209-7-2017 AUS) – Engineered screed**

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds. Can receive tiling in 24 hours as opposed to roughly 3 weeks for a normal sand/cement screed according to AS 3958.1.

- **APPLICATION:**
  - ◊ Ensure a slurry coat of **PLANICRETE SP** (700-6-2016) mixed with **TOPCEM** (207-02-2017 AUS) has been applied. Refer to the TDS for mixing details.
  - ◊ Mix water and **TOPCEM PRONTO** in strict accordance with the ratios described in the TDS.
  - ◊ Ensure screed is applied over the slurry coat whilst the slurry coat is still wet.
  - ◊ Ensure a minimum thickness of 10 mm is applied.

C. **UC LEVELLER (518-04-2018 AUS) – Levelling compound (Internal only)**

1. Fast hardening levelling smoothing compound for thicknesses from 3 mm to 70 mm: especially recommended for pumping.

- **APPLICATION:**
  - ◊ Prior to the application of the levelling compound, apply primer **ECO PRIM T PLUS** (2930-04-2018 AUS) with a brush or roller diluted in accordance with the TDS.
  - ◊ Spread the levelling compound in thicknesses from 3 to 70 mm per application, using a large metal trowel or float in accordance with the TDS.

1.4 ADHESIVE

- **NOTE:** Some natural stones can be subjected to warping and staining, therefore Mapei recommends when using natural stone to consult the manufacturer/supplier for any recommendations or guidelines. Adhesive selection for natural stone is also dependant on its moisture sensitiveness, which is represented by a class system. Please refer to EN14617 and MAPEI technical notebook: Laying Stone Materials for more information.

Adhesive to be chosen from the following options:

Normal-Set

A. ULTRALITE S1 (71-07-2016 AUS) – GOOD SOLUTION

1. One-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and long open time and extremely high yield. Easy to apply by trowel with excellent wetting properties, very low emission of volatile organic compounds for ceramic tiles, stone (Class A) and thin porcelain tiles.

- **NOTE:** Option B required when applying externally with >5000 cm^2 (700x700 mm) tiles.

B. KERABOND PLUS / ISOLASTIC (87-02-2017, 112-1-2018) – BEST SOLUTION

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stone (non-moisture sensitive, Class A), with a latex additive to improve the adhesive's characteristics and to elasticize the adhesive.

Rapid-Set

C. KERAQUICK S1 (103-06-2016 AUS) – GOOD SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*).

- **NOTE:** Option D required when applying externally with >5000 cm^2 (700x700 mm) tiles.

D. KERAQUICK S1 + LATEX PLUS (103-06-2016, 114-3-2014) – BEST SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*) with a latex additive to elasticize the adhesive.

Resin-Based

E. KERALASTIC T (122-2-2018 GB)

1. Two component, high performance polyurethane adhesive for ceramic tiles and stone material (Class A/B*/C**).

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.5 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.6 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS3958.1-2007.

SYSTEM FOR THE **INSTALLATION OF TILES DIRECT TO A CONCRETE SUBSTRATE**

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GREEN INNOVATION

MAPEI®

C02

concrete substrate

1

adhesive
Keraflex Maxi S1

2

grout
Ultracolor Plus

3

sealant
Mapesil AC

4

08/17 REV 2

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas
3. AS 4654.2-2012 – Waterproofing membranes for external above-ground use – Part 2: Design and installation

B. ***MAPEI Technical Notebook(s):***

1. Laying Stone Materials
2. Guide for the Installation of Ceramic Materials
3. Systems for Installing Thin Porcelain Tiles

C. ***Other References:***

1. ASAA Natural Stone Manual

1.2 CONCRETE SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 WATERPROOFING MEMBRANE – IF REQUIRED

A. **MAPELASTIC SMART (2013-03-2018 AUS)**

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools.

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB) or **MAPEBAND SA** (2179-8-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a flexible fillet with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) with the membrane reinforced with **MAPETEX SEL** (911-12-2016 GB) at all wall/wall, wall/floor junctions and other areas where movement is expected. Ensure fillet is completely cured prior to waterproofing.
  - ◊ Ensure substrate has adequate falls in accordance with AS 4654.2-2012/AS 3740-2010.
- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or with a roller within 60 minutes of it being mixed, to give a final thickness (DFT) of at least 2 mm.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS3740 / AS4654.2 and the TDS, and returned down into wastes.
  - ◊ Wall waterproofing membrane to be returned down across the floor substrate over the cured bond breaker/tape or flexible fillet.

1.4 ADHESIVE

- **NOTE:** Some natural stones can be subjected to warping and staining, therefore Mapei recommends when using natural stone to consult the manufacturer/supplier for any recommendations or guidelines. Adhesive selection for natural stone is also dependant on its moisture sensitiveness, which is represented by a class system. Please refer to EN14617 and MAPEI technical notebook: Laying Stone Materials for more information.

Adhesive to be chosen from the following options:

Normal-Set

A. KERAFLEX MAXI S1 (74-04-2017 AUS) – GOOD SOLUTION

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

- **NOTE:** Option B required when applying externally with >5000 cm^2 (700x700 mm) tiles.

B. KERABOND PLUS + ISOLASTIC (87-02-2017, 112-1-2018) – BEST SOLUTION

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stone (non-moisture sensitive, Class A), with a latex additive to improve the adhesive's characteristics and to elasticize the adhesive.

Rapid-Set

C. KERAQUICK S1 (103-06-2016 AUS) – GOOD SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*).

- **NOTE:** Option D required when applying externally with >5000 cm^2 (700x700 mm) tiles.

D. KERAQUICK S1 + LATEX PLUS (103-06-2016, 114-3-2014) – BEST SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*) with a latex additive to elasticize the adhesive.

Resin-Based

E. KERALASTIC T (122-2-2018 GB)

1. Two component, high performance polyurethane adhesive for ceramic tiles and stone material (Class A/B*/C**).

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.5 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.6 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS3958.1-2007.

SYSTEM FOR THE **INSTALLATION OF CERAMIC OR PORCELAIN TILES ON EXISTING TILES**

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GREEN INNOVATION

MAPEI®

C03

6

5

4

3

2

1

existing tiles

1

primer
Eco Prim Grip

2

adhesive
Keraflex Maxi S1

3

tiles

4

grout
Ultracolor Plus

5

sealant
Mapesil AC

6

08/17 REV 1

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

B. ***MAPEI Technical Notebook(s):***

1. Guide for the Installation of Ceramic Materials
2. Systems for Installing Thin Porcelain Tiles

1.2 EXISITING TILE SUBSTRATE PREPARATION

1. Mechanically prepare the existing ceramic tile substrate using the diamond grinder method to remove contaminants and to create a suitable surface profile.
2. Any existing loose/dummy tiles and loose/weak/cracked grout with large/deep joints should be removed and filled with **ADESILEX P4** (107-7-2017 AUS).
3. All substrates must be structurally sound, dry, flat, solid and stable. Any dust, grease, oil, or paint present on the surface of the exiting ceramic tile floor substrate that may inhibit bond shall be mechanically removed as per point 1. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 PRIMER

A. **ECO PRIM GRIP (2916-2-2018 GB)**

1. Multi-purpose, ready-to-use bonding promoter primer made from synthetic acrylic resin and silica inerts with a very low emission of volatile organic compounds (VOC) for render, smoothing and levelling compounds and adhesives for ceramic tiles.

- **APPLICATION:**
  - ◊ Stir ready-to-use primer prior to application, no dilution required.
  - ◊ Apply primer with either a roller or brush.

1.4 ADHESIVE

Adhesive to be chosen from the following options:

Normal-Set

A. **KERAFLEX MAXI S1 (74-04-2017 AUS)** **– GOOD SOLUTION**

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

- **NOTE:** Option B required when applying externally with >5000 cm^2 (700x700 mm) tiles.

B. **KERABOND PLUS + ISOLASTIC (87-02-2017, 112-1-2018)** **– BEST SOLUTION**

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stone (non-moisture sensitive, Class A), with a latex additive to improve the adhesive's characteristics and to elasticize the adhesive.

Rapid-Set

C. KERAQUICK S1 (103-06-2016 AUS) – GOOD SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*).

- **NOTE:** Option D required when applying externally with >5000 cm^2 (700x700 mm) tiles.

D. KERAQUICK S1 + LATEX PLUS (103-06-2016, 114-3-2014) – BEST SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*) with a latex additive to elasticize the adhesive.

Resin-Based

E. KERALASTIC T (122-2-2018 GB)

1. Two component, high performance polyurethane adhesive for ceramic tiles and stone material (Class A/B*/C**).

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.5 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. KERACOLOR RANGE - GOOD SOLUTION

1. High performance, polymer-modified, cement-base grouts.

B. ULTRACOLOR PLUS (2801-3-2018 GB) - BETTER SOLUTION

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. KERAPOXY (141-11-2016) - BEST SOLUTION

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.6 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

A. MAPESIL AC (401-4-2017 GB)

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS3958.1-2007.

FAST TRACK SYSTEM FOR THE INSTALLATION OF **PORCELAIN TILES OVER A UNBONDED SCREED**

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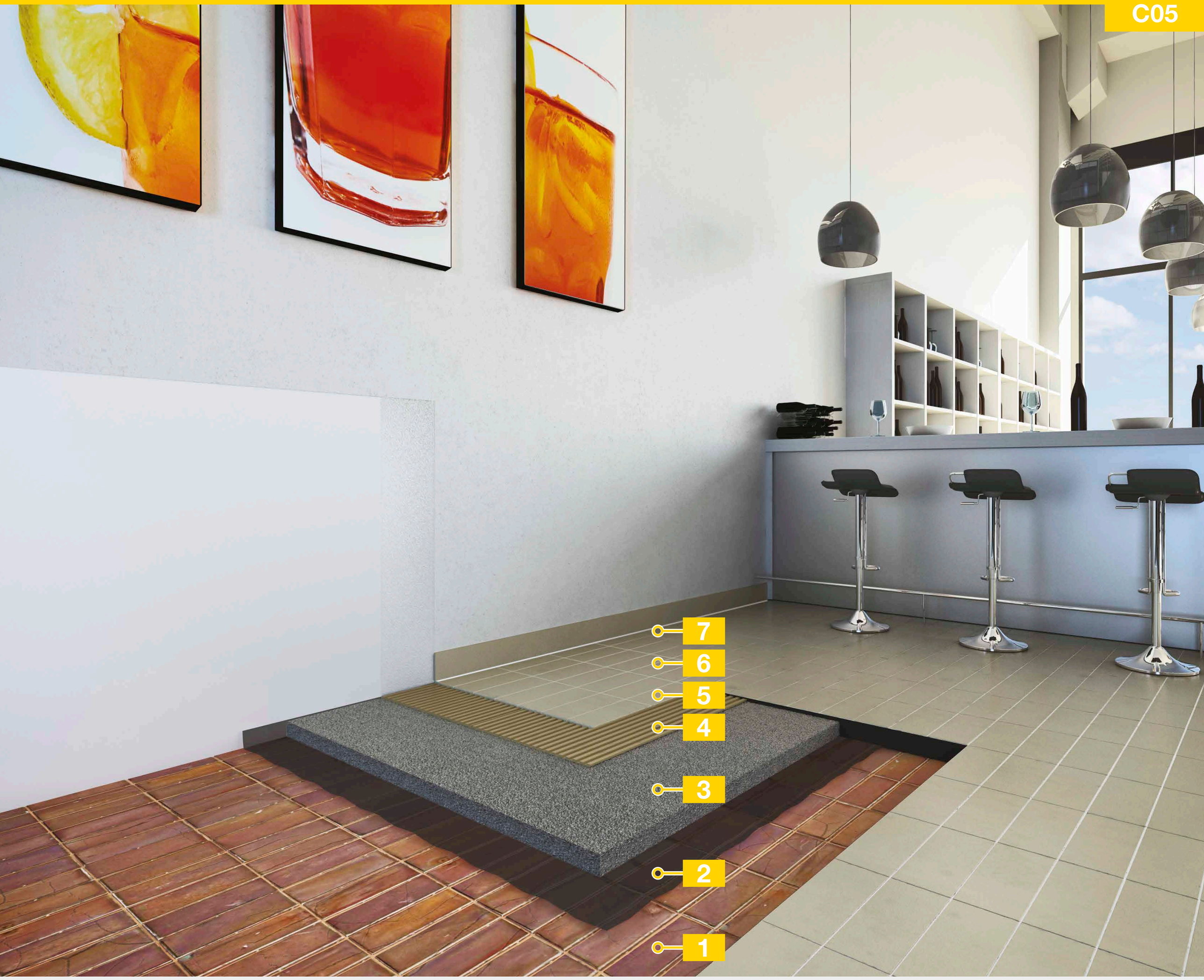
C05



existing substrate

1

separating layer

2

unbonded screed
Mapecem Pronto

3

adhesive
Keraquick S1

4

porcelain tiles

5

grout
Ultracolor Plus

6

sealant
Mapesil AC

7

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

08/17 REV 1

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas

B. ***MAPEI Technical Notebook(s):***

1. Installation of Heated Screeds and Substrates for Laying Floors
2. Guide for the Installation of Ceramic Materials
3. Ceramic Substrate Preparation Guide

1.2 UNBONDED SCREED

- **NOTE:** A bonded screed applied over a bonding slurry may be used providing the existing tile substrate is in good condition, with no drummy or cracked tiles and free of powder, loose parts, paint, wax, oil, grease, and any other contaminate which may restrict bonding.

A. **MAPECEM PRONTO (210-07-2017 AUS)**

Pre-blended, ready-to-use, quick-setting and drying (24 hours), controlled-shrinkage mortar for screeds. Ready to receive tiling after 3-4 hours.

- **APPLICATION:**
  - ◊ Prior to the application of the screed, ensure an isolating layer made of polythene sheets or similar material is laid.
  - ◊ Mix **MAPECEM PRONTO** in strict accordance with the TDS paying particular attention to the surrounding environmental conditions.
  - ◊ Apply and ensure a minimum thickness of 35 mm is applied.
  - ◊ If waterproofing is required, create adequate falls in accordance with AS 3740-2010.

1.3 WATERPROOFING MEMBRANE – IF REQUIRED

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ Ensure all pipe penetrations & angles are primed with **ECO PRIM GRIP** (2916-2-2018 GB) to create a suitable mechanically keyed surface prior to the waterproofing. Ensure penetrations are appropriately detailed.
  - ◊ Ensure a bond breaker fillet/waterproofing bandage has been applied with **MAPEBAND EASY** (7631-6-2017 GB), **MAPEBAND SA** (2179-10-2013), or **MAPEFLEX PU 45 FT** (8102-10-2016 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected. If **MAPEFLEX PU 45 FT** is used, ensure it is fully cured before applying the waterproofing membrane.

A. **MAPELASTIC AQUADEFENSE (2103-07-2018 AUS)**

Ready-to-use, ultra-quick drying, flexible liquid membrane for internal and external waterproofing applications.

- **APPLICATION:**
  - ◊ Waterproofing membrane applied to walls and floors in a minimum of two coats to form a continuous membrane at a thickness of at least 0.4 mm per coat.

1.4 ADHESIVE

Adhesive to be chosen from the following options:

A. **KERAQUICK S1 (103-06-2016 AUS)** **– GOOD SOLUTION**

High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material.

B. **KERAQUICK S1 + LATEX PLUS (103-06-2016, 114-3-2014)** **– BEST Solution**

High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material with a latex additive to elasticize the adhesive.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.5 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

A. **ULTRACOLOR PLUS (2801-3-2018 GB)**

High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology. Set for light foot traffic after 3 hours, ready for use after 24 hours.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.
  - ◊ When the grout loses its plasticity and becomes opaque (Approx. 15-30 mins), clean off excess grout with a hard, damp sponge working in a diagonal direction to the joints. Rinse sponge regularly using clean water.

1.6 SILICONE

A. **MAPESIL AC (401-4-2017 GB)**

Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS3958.1.

SYSTEM FOR THE **INSTALLATION OF TILES OVER ACOUSTIC MATTING**

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GREEN INNOVATION

MAPEI®

C06

8 7 6 5 4 3 2 1

1	2	3	4	5	6	7	8
concrete substrate	*matting adhesive* **Ultrabond Eco V4 SP**	*acoustic matting*	*screed* **Topcem Pronto**	*tile adhesive* **Keraflex Maxi S1**	*tiles*	*grout* **Ultracolor Plus**	*sealant* **Mapesil AC**

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

03/18 REV 1

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas
3. AS 4654.2-2012 – Waterproofing membranes for external above-ground use – Part 2: Design and installation

B. ***MAPEI Technical Notebook(s):***

1. Installation of Heated Screeds and Substrates for Laying Floors
2. Guide for the Installation of Ceramic Materials
3. Ceramic Substrate Preparation Guide

1.2 CONCRETE SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 WATERPROOFING MEMBRANE – WET AREAS

A. **MAPELASTIC SMART (2013-03-2018 AUS)**

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools.

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB), or **MAPEBAND SA** (2179-8-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a bond breaker with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) with the membrane reinforced with **MAPETEX SEL** (911-12-2016 GB) at all wall/wall, wall/floor junctions and other areas where movement is expected. Ensure bond breaker is completely cured prior to waterproofing.
- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or roller within 60 minutes of it being mixed. Waterproofing membrane applied at a thickness of at least 1 mm per coat.

1.4 MATTING ADHESIVE

Matting adhesive to be chosen from the following:

A. **ULTRABOND ECO V4 SP (224-8-2015) – Internal dry area, porous substrates only**

1. Universal adhesive in water dispersion for resilient floor coverings, with very low emission of volatile organic compounds and with an extended open time.

B. **ULTRABOND ECO S955 1K (270-2-2016 GB)**

1. One component, solvent free, sililated polymer based adhesive with a very low emission level of volatile organic compounds.

1.5 ACOUSTIC MATTING

A. PROPRIETARY ACOUSTIC MATTING

- **APPLICATION:**
  - ◊ Apply acoustic matting into the wet adhesive in strict accordance with the relevant MAPEI TDS and acoustic matting manufacturers' instructions.
  - ◊ With the system that is to be used, the acoustic underlay supplier should be fully accepting of the methods used and satisfied that the installation will perform under the expected environment conditions that the floor will experience. Any system guidelines specified on the acoustic matting manufacturer's technical information take precedence over this WMS.

1.6 SCREED – IF REQUIRED

- **NOTE:** A screed is recommended to be applied above the acoustic matting to create a solid substrate for tiling, especially for acoustic matting thicknesses above 4.5 mm which may be more compressible. An unbonded screed using a separation layer is the best system if it is possible to achieve the required minimum thickness.

Screed to be chosen from the following options:

A. TOPCEM PRONTO (209-7-2017 AUS) - GOOD SOLUTION

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds (4 days).

B. MAPECEM PRONTO (210-07-2017 AUS) - BEST SOLUTION

1. Pre-blended, ready-to-use, quick-setting and drying (24 hours), controlled-shrinkage mortar for screeds.

- **APPLICATION:**
  - ◊ Mix and apply in strict accordance with the TDS based on bonded or un-bonded application, paying particular attention to the surrounding environmental conditions.
  - ◊ Ensure the appropriate minimum thickness is applied.
  - ◊ Ensure substrate has adequate falls in accordance with AS 4654.2-2012 / AS 3740-2010 as required.

1.7 WATERPROOFING MEMBRANE – WET AREAS OVER SCREED

A. MAPELASTIC SMART (2013-03-2018 AUS)

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools.

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB), or **MAPEBAND SA** (2179-8-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a bond breaker with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) with the membrane reinforced with **MAPETEX SEL** (911-12-2016 GB) at all wall/wall, wall/floor junctions and other areas where movement is expected. Ensure bond breaker is completely cured prior to waterproofing.
- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or roller within 60 minutes of it being mixed. Waterproofing membrane applied at a thickness of at least 1 mm per coat.

1.8 TILE ADHESIVE

Tile adhesive to be chosen from the following options:

Normal-Set

A. KERAFLEX MAXI S1 (74-04-2017 AUS)

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

- **NOTE:** When direct tiling over 100% rubber-based acoustic matting with **KERAFLEX MAXI S1**, firstly prime with **ECO PRIM T PLUS** (2930-04-2018 AUS) undiluted.

B. KERABOND PLUS + ISOLASTIC 50 (87-02-2017, 116-6-2013)

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stone with a latex additive to elasticize the adhesive.

C. ULTRALITE S2 (30-7-2017 AUS)

1. One-component, high performance, highly-deformable, lightweight cementitious adhesive with extended open time and very high yield, easy to trowel and good buttering capacity with very low emission of volatile organic compounds, for ceramic tiles and stone material, ideal for thin porcelain tiles.

Fast-Set

D. KERAQUICK S1 (103-06-2016 AUS)

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material.

- **NOTE:** When direct tiling over 100% rubber-based acoustic matting with **KERAQUICK S1**, firstly prime with **ECO PRIM T PLUS** (2930-04-2018 AUS) undiluted.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.
  - ◊ Extend curing period before light foot traffic and grouting as the tile adhesive will take longer to cure when applied between two non-absorbent surfaces.

1.9 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Prepare and mix grout in strict accordance to the packaging and TDS.
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.10 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

A. **MAPESIL AC (401-4-2017 GB)**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS3958.1-2007.

SYSTEM FOR THE **INSTALLATION OF CERAMIC TILES & STONE MATERIAL ON BALCONIES**

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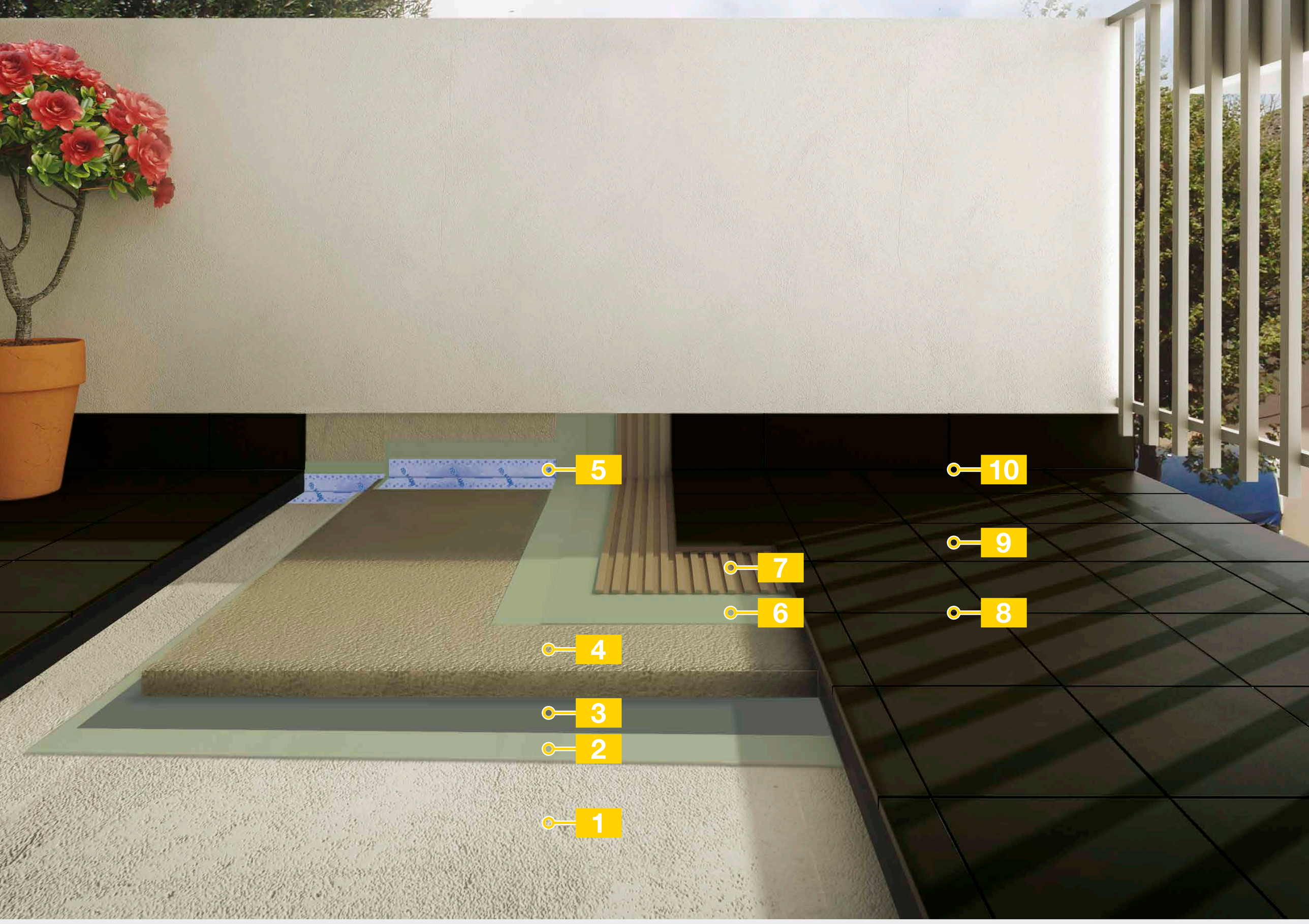
MAPEI®

C07



existing substrate

1

waterproofing membrane
Mapelastic Smart

2

bonding slurry
Planicrete SP mixed with Mapecem

3

screed
Mapecem Pronto

4

rubber tape
Mapeband Easy

5

waterproofing membrane
Mapelastic Smart

6

adhesive
Keraflex Maxi S1

7

grout
Ultracolor Plus

8

tiles

9

sealant
Mapesil AC

10

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

04/19 REV 2

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 4654.2-2012 – Waterproofing membranes for external above-ground use – Part 2: Design and installation

B. ***MAPEI Technical Notebook(s):***

1. Installation of Heated Screeds and Substrates for Laying Floors
2. Waterproofing Terraces and Balconies
3. Laying Stone Materials
4. Guide for the Installation of Ceramic Materials

C. ***Other References:***

1. ASAA Natural Stone Manual

1.2 SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the substrates that may inhibit bond shall be mechanically removed. The substrates should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI Technical Data Sheets (TDS).

1.3 WATERPROOFING MEMBRANE

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB), or **MAPEBAND SA** (2179-8-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a flexible fillet with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) (**MAPELASTIC SMART** to be reinforced with **MAPETEX SEL** (911-12-2016 GB)) at all wall/wall, wall/floor junctions and other areas where movement is expected. Ensure fillet is completely cured prior to waterproofing.

Waterproofing membrane to be chosen from the following options:

A. **MAPELASTIC SMART (2013-03-2018 AUS)**

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools. Applied at a thickness of at least 1 mm per coat.

B. **AQUAFLEX WPU (7671-06-2018 AUS)**

1. Ready-to-use, quick drying and flexible Class III water-based hybrid polyurethane membrane for internal and external waterproofing applications. Applied at a wet film thickness of at least 0.75 mm.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two even coats by brush and roller to achieve the required film thickness for the product used.
  - ◊ If the substrate is CFC sheet, apply a reinforcement fabric along all joints with **MAPETEX SEL** in strict accordance with the TDS.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS 4654.2 and the TDS, and returned down into wastes.

1.4 BONDED SCREED – WHERE REQUIRED

Bonded screed to be chosen from the following options:

A. TOPCEM PRONTO (209-7-2017 AUS) - GOOD SOLUTION

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds (4 days).

B. MAPECEM PRONTO (210-07-2017 AUS) - BEST SOLUTION

1. Pre-blended, ready-to-use, quick-setting and drying (24 hours), controlled-shrinkage mortar for screeds.

- **APPLICATION:**
  - ◊ Ensure a slurry coat of **PLANICRETE SP** (700-6-2016) mixed with either **MAPECEM** (201-02-2017 AUS) or **TOPCEM** (207-02-2017 AUS) has been applied depending on chosen product. Refer to the TDS for mixing details,
  - ◊ Mix engineered screed in strict accordance with the TDS, paying particular attention to the surrounding environmental conditions.
  - ◊ Ensure screed is applied over the slurry coat whilst the slurry coat is still wet.
  - ◊ Ensure a minimum thickness of 10 mm is applied.
  - ◊ Ensure screed has adequate falls in accordance with AS 4654.2-2012.

1.5 WATERPROOFING MEMBRANE – IF SCREED IS USED

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB), or **MAPEBAND SA** (2179-8-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a flexible fillet with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) (**MAPELASTIC SMART** to be reinforced with **MAPETEX SEL** (911-12-2016 GB)) at all wall/wall, wall/floor junctions and other areas where movement is expected. Ensure fillet is completely cured prior to waterproofing.

Waterproofing membrane to be chosen from the following options:

A. MAPELASTIC SMART (2013-03-2018 AUS)

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools. Applied at a thickness of at least 1 mm per coat.

B. AQUAFLEX WPU (7671-06-2018 AUS)

1. Ready-to-use, quick drying and flexible Class III water-based hybrid polyurethane membrane for internal and external waterproofing applications. Applied at a wet film thickness of at least 0.75 mm.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two even coats by brush and roller to achieve the required film thickness for the product used.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS 4654.2 and the TDS, and returned down into wastes.

1.6 ADHESIVE

- **NOTE:** Some natural stones can be subjected to warping and staining, therefore Mapei recommends when using natural stone to consult the manufacturer/supplier for any recommendations or guidelines. Adhesive selection for natural stone is also dependant on its moisture sensitiveness, which is represented by a class system. Please refer to EN14617 and MAPEI technical notebook: Laying Stone Materials for more information.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. With moisture transportation being the driving force, to assist in mitigating the potential for efflorescence it is recommended to use a two-component adhesive (mixed with a latex) to reduce the porosity of the system. Furthermore, voids behind the tile must be avoided by maximising adhesive coverage.

Adhesive to be chosen from the following options:

Normal-Set

A. KERAFLEX MAXI S1 (74-04-2017 AUS) – GOOD SOLUTION

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

- **NOTE:** Option B required when applying externally with >5000 cm^2 (700x700 mm) tiles.

B. KERABOND PLUS + ISOLASTIC (87-02-2017, 112-1-2018) – BEST SOLUTION

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stone (non-moisture sensitive, Class A), with a latex additive to improve the adhesive's characteristics and to elasticize the adhesive.

Rapid-Set

C. KERAQUICK S1 (103-06-2016 AUS) – GOOD SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*).

- **NOTE:** Option D required when applying externally with >5000 cm^2 (700x700 mm) tiles.

D. KERAQUICK S1 + LATEX PLUS (103-06-2016, 114-3-2014) – BEST SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*) with a latex additive to elasticize the adhesive.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.7 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. To assist in mitigating efflorescence, it is recommended to use **ULTRACOLOR PLUS** or **KERAPOXY** as they both do not contain Portland cement, which is the source of efflorescence.

Grout to be chosen from the following options:

A. KERACOLOR RANGE **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. ULTRACOLOR PLUS (2801-3-2018 GB) **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. KERAPOXY (141-11-2016) **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.8 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. MAPESIL LM (408-1-2015 GB) – Stone

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.

1.7 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. To assist in mitigating efflorescence, it is recommended to use **ULTRACOLOR PLUS** or **KERAPOXY** as they both do not contain Portland cement, which is the source of efflorescence.

Grout to be chosen from the following options:

A. KERACOLOR RANGE **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. ULTRACOLOR PLUS (2801-3-2018 GB) **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. KERAPOXY (141-11-2016) **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.8 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. MAPESIL LM (408-1-2015 GB) – Stone

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.

1.8 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.9 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.

SYSTEM FOR THE **INSTALLATION OF TILES IN BATHROOMS AND DAMP ENVIRONMENTS**

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C08

concrete substrate

1

rubber tape
Mapeband Easy

2

primary waterproofing membrane
Mapelastic AquaDefense

3

bonding slurry
Planicrete SP *mixed with* **Mapecem**

4

screed
Mapecem Pronto

5

secondary waterproofing membrane
Mapelastic AquaDefense

6

adhesive
Keraflex Maxi S1

7

grout
Ultracolor Plus

8

sealant
Mapesil AC

9

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

04/19 REV 2

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas

B. ***MAPEI Technical Notebook(s):***

1. Installation of Heated Screeds and Substrates for Laying Floors
2. Laying Stone Materials
3. Guide for the Installation of Ceramic Materials

C. ***Other References:***

1. ASAA Natural Stone Manual

1.2 SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 WATERPROOFING MEMBRANE

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB) or **MAPEBAND SA** (2179-10-2013) or a flexible fillet with **MAPEFLEX PU45 FT** (8102-10-2016 GB) at all wall/wall, wall/floor junctions and all other areas where movement is expected. Ensure flexible fillet is dry and fully cured if used before applying membrane.
  - ◊ Ensure substrate has adequate falls in accordance with AS 3740. If not, apply a screed which incorporates falls.

Waterproofing membrane to be chosen from the following options:

A. **MAPELASTIC AQUADEFENSE (2103-11-2014 GB)**

1. Ready-to-use, ultra-quick drying, flexible liquid membrane for internal and external waterproofing applications. Applied at a minimum 0.4 mm per coat.

B. **MAPEGUM WPS (2014-12-2012)**

1. Fast drying flexible liquid membrane for waterproofing. Applied at a minimum 0.5 mm per coat.

C. **AQUAFLEX WPU (7671-06-2018 AUS)**

1. Ready-to-use, quick drying and flexible Class III water-based hybrid polyurethane membrane for internal and external waterproofing applications. Applied at a thickness of at least 0.75 mm.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied to walls and floors in a minimum of two even coats to form a final flexible, continuous dry film thickness in accordance with which membrane was used.
  - ◊ (FC Sheeting) It is recommended to reinforce with **MAPETEX SEL** (911-12-2016 GB) or **MAPETEX 50** (956-2-2018 GB) at the sheet joints by embedding in the first membrane coat in accordance with the TDS.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS 3740 and the TDS, and returned down into wastes.
  - ◊ Wall waterproofing membrane to be returned down across the floor substrate over the cured bond breaker/tape or flexible fillet.

1.4 SCREED – IF REQUIRED

Screed to be chosen from the following options:

A. **TOPCEM PRONTO (209-7-2017 AUS)** **- GOOD SOLUTION**

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds (4 days).

B. **MAPECEM PRONTO (210-07-2017 AUS)** **- BEST SOLUTION**

1. Pre-blended, ready-to-use, quick-setting and drying (24 hours), controlled-shrinkage mortar for screeds.

- **APPLICATION:**
  - ◊ Mix and apply in strict accordance with the TDS based on bonded or un-bonded application, paying attention to the surrounding environmental conditions. Incorporate falls in accordance with AS 3740.
  - ◊ Ensure the appropriate minimum thickness is applied.

1.5 WATERPROOFING MEMBRANE – IF SCREED WAS USED

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB), **MAPEBAND EASY** (7631-6-2017 GB) or **MAPEBAND SA** (2179-10-2013) or a flexible fillet with **MAPEFLEX PU45 FT** (8102-10-2016 GB) at all wall/wall, wall/floor junctions and all other areas where movement is expected. Ensure flexible fillet is dry and fully cured if used before applying membrane.

Waterproofing membrane to be chosen from the following options:

A. **MAPELASTIC AQUADEFENSE (2103-11-2014 GB)**

1. Ready-to-use, ultra-quick drying, flexible liquid membrane for internal and external waterproofing applications. Applied at a minimum 0.4 mm per coat.

B. **MAPEGUM WPS (2014-12-2012)**

1. Fast drying flexible liquid membrane for waterproofing. Applied at a minimum 0.5 mm per coat.

C. **AQUAFLEX WPU (7671-06-2018 AUS)**

1. Ready-to-use, quick drying and flexible Class III water-based hybrid polyurethane membrane for internal and external waterproofing applications. Applied at a thickness of at least 0.75 mm.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied to walls and floors in a minimum of two even coats to form a final flexible, continuous dry film thickness in accordance with which membrane was used.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS 3740 and the TDS, and returned down into wastes.

1.6 ADHESIVE

- **NOTE:** Some natural stones can be prone to warping and staining, therefore MAPEI recommends when using natural stone to consult the manufacturer/supplier for any recommendations or guidelines. Adhesive selection for natural stone is also dependant on its moisture sensitiveness, which is represented by a class system. Please refer to EN14617 and MAPEI technical notebook: Laying Stone Materials for more information.

Adhesive to be chosen from the following options:

A. KERAFLEX MAXI S1 (74-04-2017 AUS) – Normal Set

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive, Class A).

B. KERAQUICK S1 (103-06-2016 AUS) – Rapid Set

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B*).

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.7 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.8 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.

1.7 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.8 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

1. Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.

SYSTEM FOR THE **INSTALLATION OF CERAMIC OR STONE CLADDING**

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concrete substrate	*repair and smoothing render (if required)* **Planitop Smooth & Repair R4**	*cementitious waterproofing membrane* **Mapelastic Smart**	*CLASS A STONE* **Kerabond Plus** *and* **Isolastic 50**	*adhesive* *CLASS B STONE* **Granirapid**	*CLASS C STONE* **Keralastic T**	*ceramic/stone*	*grout* **Ultracolor Plus** *or* **Kerapoxy**	*silicone* **Mapesil AC** *or* **Mapesil LM**
1	**2**	**3**		**4**		**5**	**6**	**7**

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

06/17 REV 0

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas
3. AS 4654.2-2012 – Waterproofing membranes for external above-ground use – Part 2: Design and installation

B. ***MAPEI Technical Notebook(s):***

1. Laying Stone Materials
2. Guide for the Installation of Ceramic Materials
3. Systems for Installing Thin Porcelain Tiles
4. MAPEI Ceramic Substrate Preparation Guide

C. ***Other References:***

1. ASAA Natural Stone Manual

1.2 SUBSTRATE PREPARATION

1. All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the substrates that may inhibit bond shall be mechanically removed. The substrates should then be cleaned and prepared in accordance with the relevant standards, substrate manufacturer's guidelines, and as per the MAPEI technical data sheets.
2. Substrates such as plasterboard, fibre cement boards, and plywood are generally not suitable in external environments. Some proprietary sheets may be suitable, but it is imperative that advice from the manufacturer is sought. There may be limits such as the height of installation, weight of tiling, degree of exposure to weather, and the need for mechanical fixing.
3. It is advisable to use mechanical fixings, such as metal angles or pin fixings, where the tile/stone is to be applied at a wall height exceeding 3 m above the ground with a stone/tile mass greater than 32 kg/m^2 or a size of 600 x 600 mm or larger.

1.3 SMOOTHING COMPOUND – CEMENTITIOUS SUBSTRATES WHERE REQUIRED

A. **PLANITOP SMOOTH & REPAIR R4 (1136-9-2014)**

Structural R4 class, rapid setting, shrinkage compensated, thixotropic, fibre reinforced, cementitious mortar, applied in a single layer from 3 to 40 mm thick, for repairing and smoothing concrete.

- **APPLICATION:**
  - ◊ Saturate the substrate with water, then wait until excess water has evaporated.
  - ◊ Apply mortar with a smooth trowel in a single layer from 3-40 mm in thickness.

1.4 WATERPROOFING MEMBRANE – IF REQUIRED

A. **MAPELASTIC SMART (2013-03-2018 AUS)**

Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, and bathrooms.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or roller at a thickness of at least 1 mm per coat.
  - ◊ For FC sheet substrates, the waterproofing membrane must be applied and used with a reinforcement fabric along all joints with **MAPETEX SEL** (911-12-2016 GB), in strict accordance with the TDS.

1.5 ADHESIVE

- **NOTE:** Natural stone can be subjected to warping and staining, therefore Mapei recommends referring to stone manufacturer's instructions. Adhesive selection is also dependant on moisture sensitiveness of stone, which is represented by a class system. Please refer to EN14617 and Mapei technical notebook – Laying Stone Materials.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. With moisture transportation being the driving force, to assist in mitigating the potential for efflorescence it is recommended to use a two-component adhesive (mixed with a latex) to reduce the porosity of the system. Furthermore, voids behind the tile must be avoided by maximising adhesive coverage.

Adhesive to be chosen from the following options:

Normal-Set

A. **KERAFLEX MAXI S1 (74-04-2017 AUS)** **– GOOD SOLUTION**

High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive, Class A stones).

B. **KERABOND PLUS + ISOLASTIC 50 (87-02-2017)/116-6-2013)** **– BEST SOLUTION**

Cement based powder with superior bond strength suitable for all types of tiles and natural stone (Class A stones) with a latex additive to elasticize the adhesive.

C. **ULTRALITE S2 (30-7-2017 AUS)** **– BEST SOLUTION**

One-component, high performance, highly-deformable, lightweight cementitious adhesive with extended open time and very high yield, easy to trowel and good buttering capacity with very low emission of volatile organic compounds, for ceramic tiles and stone material, ideal for thin porcelain tiles.

Fast-Set

D. **GRANIRAPID (113-2-2014)** **– GOOD SOLUTION**

Two component high performance fast setting and hydrating cementitious adhesive for ceramic tiles and stone materials (Class A/B* stones).

E. **KERAQUICK S1 + LATEX PLUS (103-06-2016 AUS, 114-3-2014)** **– BEST SOLUTION**

High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B* stones) with a latex additive to further elasticize the adhesive.

Resin-Based

F. **KERALASTIC T (122-2-2018 GB)**

Two component, high performance polyurethane adhesive for ceramic tiles and stone material (Class A/B*/C** stones).

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.6 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. To assist in mitigating efflorescence, it is recommended to use **ULTRACOLOR PLUS** or **KERAPOXY** as they both do not contain Portland cement, which is the source of efflorescence.

Grout to be chosen from the following options:

A. **KERACOLOR RANGE** **- GOOD SOLUTION**

High performance, polymer-modified, cement-base grouts.

B. **ULTRACOLOR PLUS (2801-3-2018 GB)** **- BETTER SOLUTION**

High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. **KERAPOXY (141-11-2016)** **- BEST SOLUTION**

Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.7 SILICONE

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Silicone to be chosen from the following options:

A. **MAPESIL AC (401-4-2017 GB) – Ceramic/Porcelain**

Solvent-free, acetic crosslinking mildew resistant silicone sealant.

B. **MAPESIL LM (408-1-2015 GB) – Stone**

Neutral mould resistant silicone sealant for stone and marble.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1-2007.
  - ◊ It is highly recommended to exceed the requirements of AS 3958.1 when large format or dark coloured tiles are used, or if the tiles will receive extended periods of strong sunlight.

SYSTEM FOR THE **INSTALLATION OF PORPHYRY AND COBBLESTONES**

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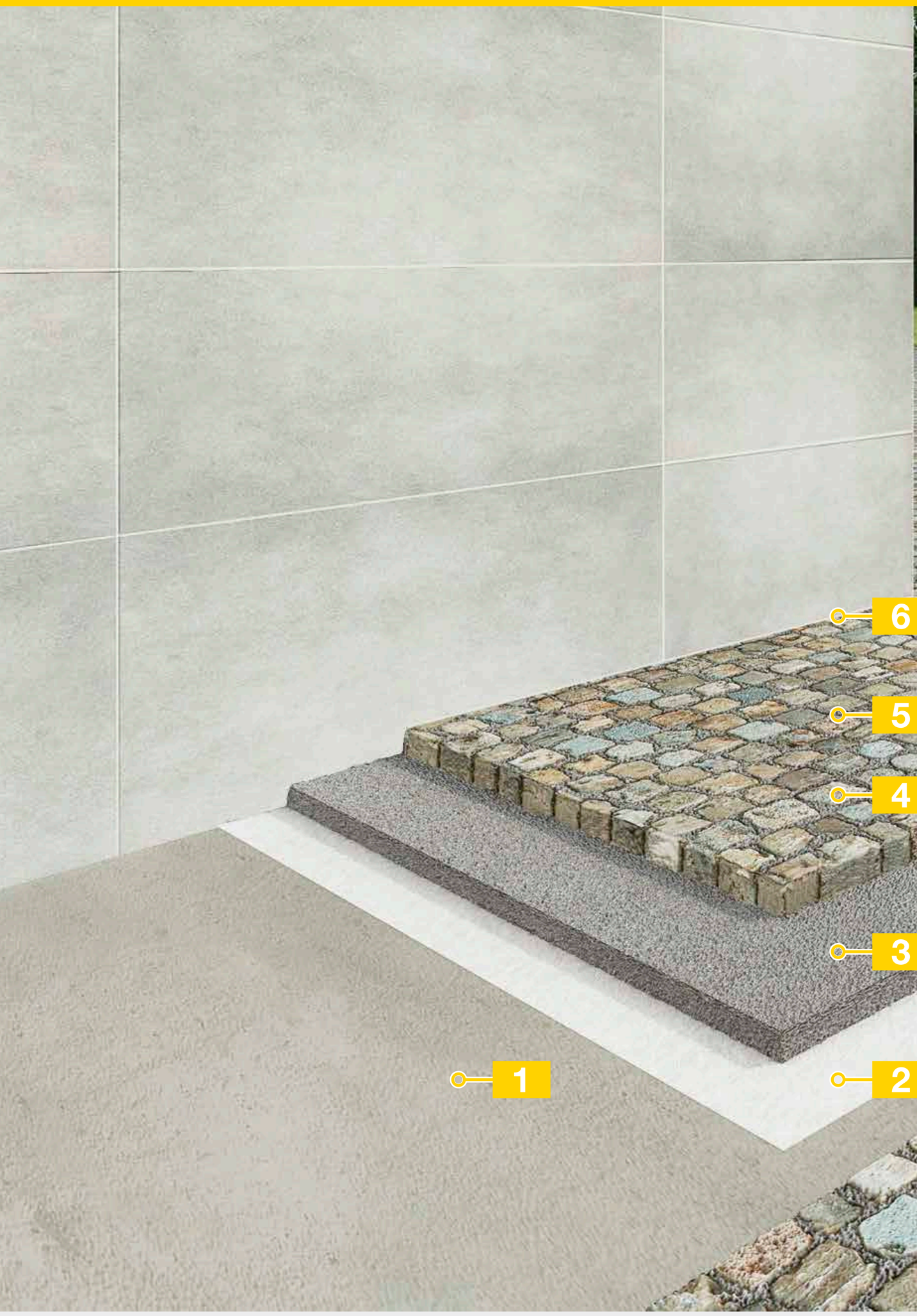

properly prepared concrete substrate

1

separating layer

2

installation mortar
Mapestone TFB 60

3

porphyry or cobblestones properly prepared

4

grout
Mapestone PFS 2 Visco

5

sealant
Mapesil LM

6

05/18 REV 0

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

1.2 SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the substrates that may inhibit bond shall be mechanically removed. The substrates should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI Technical Data Sheets (TDS).

1.3 INSTALLATION MORTAR

A. **MAPESTONE TFB 60 (495-02-2018 AUS)**

1. Pre-blended mortar for the installation of screeds for architectural stone flooring, exposure classes XF4 and XS3, with high compressive strength and resistance to freeze-thaw cycles, de-icing salts and seawater.

- **APPLICATION:**
  - ◊ It is highly recommended to use a separation layer such as PVC sheets or non-woven fabric, especially when the substrate is not particularity solid or if it is prone to cracking. Alternatively, use a bonding slurry made from 2 parts **PLANICRETE SP** to 3 parts Portland cement, applied in a 2-3 mm thick layer and the screed applied wet-on-wet.
  - ◊ Mix product in accordance with the TDS.
  - ◊ Spread the mix in small areas at a time in a 50-70 mm thick layer.
  - ◊ Lay the stones in the required pattern using a 5 to 15 mm gap around each piece.

1.4 GROUT

A. **MAPESTONE PFS 2 VISCO (1171-06-2018 AUS)**

1. Pre-mixed, low viscosity, high-strength mortar with good resistance to de-icing salts, seawater and freeze-thaw cycles, exposure class XF4 and XS3, for grouting architectural flagstone and block stone paving. Available in neutral and dark grey.

- **APPLICATION:**
  - ◊ Dampen the stones and ensure joints are free of standing water and are clean. Joints must be at least 25 mm deep.
  - ◊ Mix with 3 to 3.5 litres of water per bag depending on surrounding conditions.
  - ◊ Completely fill all joints between stones the same day the stone were installed (fresh on fresh).
  - ◊ Remove grout residue with water and a sponge prior to it hardening.
  - ◊ Protect the flooring for at least 12 hours after application.

1.5 SEALANT

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Sealant to be chosen from the following options:

A. **MAPESIL LM (408-1-2015 GB)**

1. Neutral mould resistant silicone sealant for stone and marble.

B. **MAPEFLEX PU40 (422-05-2017 AUS) – Heavy traffic applications**

1. Polyurethane sealants for intense traffic applications. It is recommended to use **PRIMER A** to further improve adhesion for intense traffic applications.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1.

SYSTEM FOR THE **INSTALLATION OF STONE AND PAVERS**

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properly prepared concrete substrate	*bonding slurry* **Planicrete SP mixed with cement (refer TDS)**	*installation mortar* **Mapestone TFB 60**	*bonding slurry* **Planicrete SP mixed with cement (refer TDS)**	*stone or pavers*	*grout* **Mapestone PFS 2 Visco**	*sealant* **Mapesil LM**
1	**2**	**3**	**4**	**5**	**6**	**7**

05/18 REV 0

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard:***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

1.2 SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the substrates that may inhibit bond shall be mechanically removed. The substrates should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI Technical Data Sheets (TDS).

1.3 INSTALLATION MORTAR

A. **MAPESTONE TFB 60 (495-02-2018 AUS)**

1. Pre-blended mortar for the installation of screeds for architectural stone flooring, exposure classes XF4 and XS3, with high compressive strength and resistance to freeze-thaw cycles, de-icing salts and seawater.

- **APPLICATION:**
  - ◊ It is highly recommended to use a separation layer such as PVC sheets or non-woven fabric, especially when the substrate is not particularity solid or if it is prone to cracking. Alternatively, use a bonding slurry made from 2 parts **PLANICRETE SP** to 3 parts Portland cement, applied in a 2-3 mm thick layer and the screed applied wet-on-wet.
  - ◊ Mix product in accordance with the TDS.
  - ◊ Spread the mix in small areas at a time in a 50-70 mm thick layer.
  - ◊ Mix a bonding slurry made from 2 parts **PLANICRETE SP** to 3-4 parts Portland cement and apply a layer of the slurry to the back of each stone.
  - ◊ Lay the stones wet-on-wet in the required pattern using a 5 to 15 mm gap around each piece.

1.4 GROUT

A. **MAPESTONE PFS 2 VISCO (1171-06-2018 AUS)**

1. Pre-mixed, low viscosity, high-strength mortar with good resistance to de-icing salts, seawater and freeze-thaw cycles, exposure class XF4 and XS3, for grouting architectural flagstone and block stone paving. Available in neutral and dark grey.

- **APPLICATION:**
  - ◊ Dampen the stones and ensure joints are free of standing water and are clean. Joints must be at least 25 mm deep.
  - ◊ Mix with 3 to 3.5 litres of water per bag depending on surrounding conditions.
  - ◊ Completely fill all joints between stones the same day the stone were installed (fresh on fresh).
  - ◊ Remove grout residue with water and a sponge prior to it hardening.
  - ◊ Protect the flooring for at least 12 hours after application.

1.5 SEALANT

- **NOTE:** Prior to the application of silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the stone/tile.

Sealant to be chosen from the following options:

A. **MAPESIL LM (408-1-2015 GB)**

1. Neutral mould resistant silicone sealant for stone and marble.

B. **MAPEFLEX PU40 (422-05-2017 AUS) – Heavy traffic applications**

1. Polyurethane sealants for intense traffic applications. It is recommended to use **PRIMER A** to further improve adhesion for intense traffic applications.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1.

SYSTEM FOR THE **INSTALLATION OF LARGE FORMAT TILES**

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Wall

Floor

1	2	3	4	5	6	7	8	9	10	11
properly prepared concrete	*render* **Planitop Smooth and Repair R4**	*adhesive* **Ultralite S2**	*grout* **Ultracolor Plus**	*silicone* **Mapesil AC**	*properly prepared concrete*	*primer* **Eco Prim T Plus**	*levelling compound* **UC Leveller**	*adhesive* **Ultralite S2**	*grout* **Ultracolor Plus**	*silicone* **Mapesil AC**

06/18 REV 0

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles
2. AS 3740-2010 – Waterproofing of domestic wet areas
3. AS 4654.2-2012 – Waterproofing membranes for external above-ground use – Part 2: Design and installation

B. ***MAPEI Technical Notebook(s):***

1. Guide for the Installation of Ceramic Materials
2. Systems for Installing Thin Porcelain Tiles
3. Instructions for Installing Large Format Ceramic Tiles
4. Manual for Installing Large Format Ceramic Tiles

1.2 SUBSTRATE PREPARATION

All substrates must be structurally sound, dry, solid, flat, smooth, and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards, any manufacturer's instructions, and as per the MAPEI technical data sheets (TDS).

1.3 LEVELLING MATERIAL – WHERE REQUIRED

Levelling material to be chosen from the following options:

A. **UC LEVELLER (518-04-2018 AUS) – Internal dry floor areas**

1. Fast hardening levelling smoothing compound for thicknesses from 3 mm to 70 mm: especially recommended for pumping.

- **APPLICATION:**
  - ◊ Apply primer **ECO PRIM T PLUS** (2930-04-2018 AUS) with a brush or roller diluted in accordance with the TDS.
  - ◊ Spread the self-levelling compound in thicknesses from 3 to 70 mm per application, using a large metal trowel or float, tilting the trowel slightly to obtain the desired thickness.

B. **NIVORAPID (502-12-2013) – Internal floor/wall areas**

1. Ultra-fast setting, thixotropic, cementitious levelling compound for horizontal and vertical surfaces for 1 to 20 mm thick layers.

- **APPLICATION:**
  - ◊ Mix and apply using a long metal trowel in accordance with the TDS.

C. **PLANITOP SMOOTH & REPAIR R4 (1136-9-2014) – All areas**

1. Structural R4 class, rapid setting, shrinkage compensated, thixotropic, fibre reinforced, cementitious mortar, applied in a single layer from 3 to 40 mm thick, for repairing and smoothing concrete.

- **APPLICATION:**
  - ◊ Saturate the substrate with water, then wait for any excess water to evaporate.
  - ◊ Apply the mortar with a smooth trowel in a single layer from 3 to 40 mm in thickness.

1.4 WATERPROOFING MEMBRANE – WET AREAS

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB) or **MAPEBAND SA** (2179-10-2013) or a flexible fillet with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) at all wall/wall, wall/floor junctions and all other areas where movement is expected. Ensure flexible fillet is dry and fully cured if used before applying membrane.

Waterproofing membrane to be chosen from the following options:

A. MAPEGUM WPS (2014-12-2012) – Internal areas only

1. Fast drying flexible liquid membrane for waterproofing. Applied at a minimum 0.5 mm thickness per coat.

B. MAPELASTIC AQUADEFENSE (2103-11-2014 GB)

1. Ready-to-use, ultra-quick drying, flexible liquid membrane for internal and external waterproofing applications (DFT = 0.8 mm).

C. MAPELASTIC SMART (2013-03-2018 AUS)

1. Two component, Class II high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools (DFT = 2 mm).

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied to walls and floors in a minimum of two even coats to form a final flexible, continuous dry film thickness in accordance with which membrane was used.
  - ◊ Where required, apply a reinforcement fabric with **MAPETEX SEL** (911-12-2016 GB) or **MAPETEX 50** (956-2-2018 GB) embedded in the first coat in accordance with the TDS.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with AS 3740-2010/AS 4654.2-2012 and the TDS, and returned down into wastes.
  - ◊ Wall waterproofing membrane to be returned down across the floor substrate over the cured bond breaker/tape or flexible fillet.

1.5 ADHESIVE

NOTE: The following table provides general adhesive recommendations based on installation location, with or without tile reinforcement mesh, and depending on the size of the tile. For a complete list of recommended adhesives, please view the references listed in section 1.1. Also refer to the tile manufacturer for adhesive recommendations.

Adhesive to be chosen from the following options:

Area	Normal-Set	Rapid-Set
Internal[1]	**ULTRALITE S1**	**KERAQUICK S1**
Internal[1] (Mesh, Side ≤ 1 m)	**ULTRALITE S1**	**KERAQUICK S1**
Internal (Mesh, Side > 1 m)	**ULTRALITE S2**	**KERAQUICK S1 + LATEX PLUS**
External Wall (Side ≤ 1 m)	**KERABOND PLUS+ISOLASTIC 50**	**GRANIRAPID**
External Wall (Side > 1 m)	**KERABOND PLUS+ISOLASTIC**	**KERAQUICK S1 + LATEX PLUS**
External Wall (Mesh, Side ≤ 1 m)	**KERABOND PLUS+ISOLASTIC**	**KERAQUICK S1 + LATEX PLUS**
External Wall (Mesh, Side > 1 m)	**KERALASTIC T**	**KERAQUICK S1 + LATEX PLUS**

[1]-On internal plasterboard or cement-fibre based substrates, use Ultralite S2 or Keraquick S1+Latex Plus.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel. Do this method to both the substrate and back of the tile (*Double-buttering method*) ensuring the notches are in the same direction.
  - ◊ Pay particular attention to the open time and pot life of the adhesive, ensuring the adhesive stays "*fresh*" and does not form a skin. Especially in hot environments and when using a rapid-set adhesive.
  - ◊ Place the tile firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.6 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.

Grout to be chosen from the following options:

A. ULTRACOLOR PLUS (2801-3-2018 GB) **- GOOD SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

B. KERAPOXY (141-11-2016) OR KERAPOXY DESIGN (149-11-2016) **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm.

- **APPLICATION:**
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.

1.7 SILICONE

- **NOTE:** Prior to application of the silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the tile.

A. MAPESIL AC (401-4-2017 GB)

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints should be installed in accordance with AS 3958.1.
  - ◊ It is highly recommended to exceed the requirements of AS 3958.1 when large format or dark coloured tiles are used, and/or if the tiles will receive extended periods of strong sunlight.

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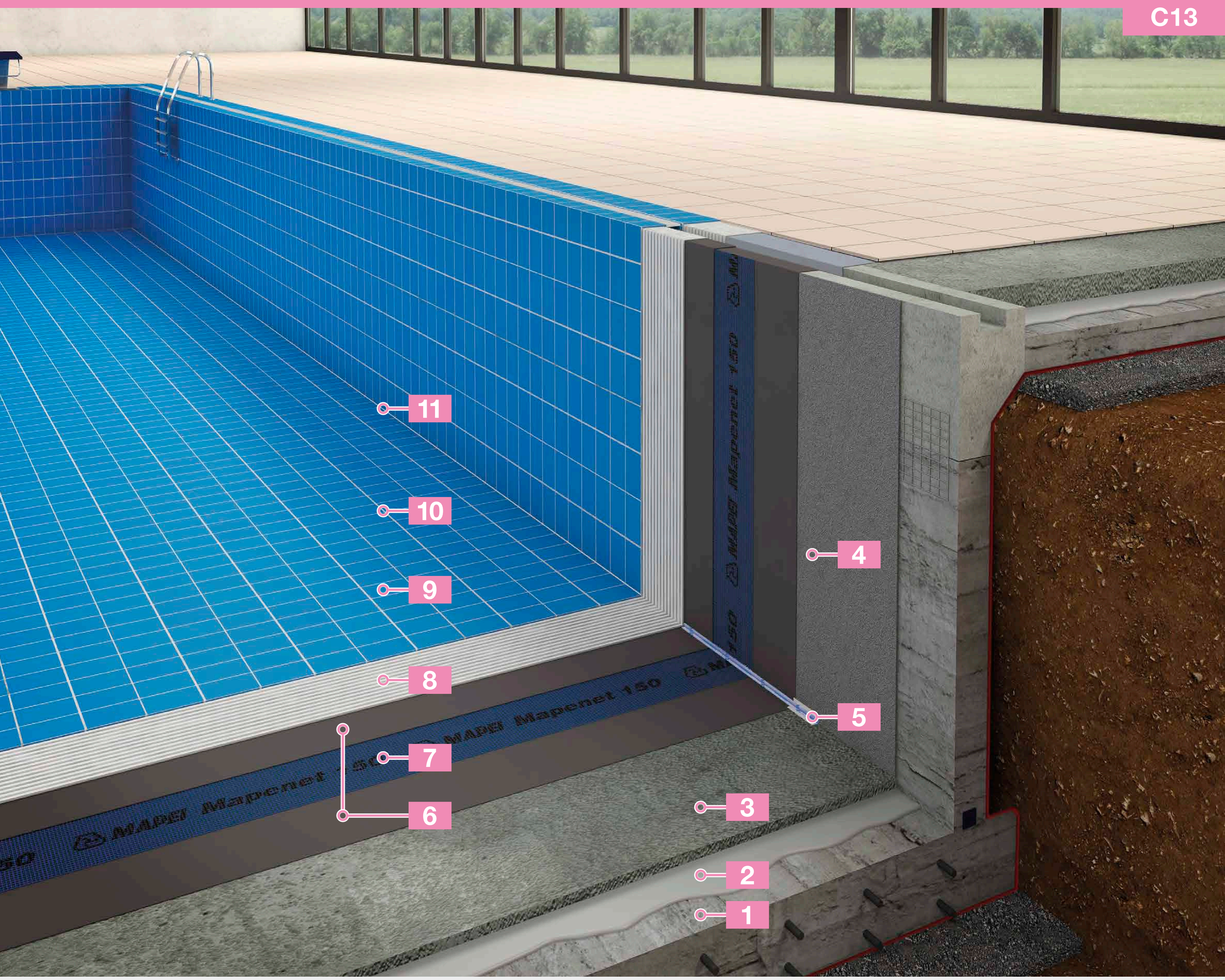

1	2	3	4	5	6	7	8	9	10	11
concrete structure *reinforced*	*bonding slurry* **Planicrete SP** *mixed with* **Topcem**	*screed* **Topcem Pronto**	*cementitious render* **Planitop Smooth & Repair R4**	*rubber tape* **Mapeband Easy**	*cementitious waterproofing* **Mapelastic Smart**	*fibre glass mesh* **Mapenet 150**	*adhesive* **Keraflex Maxi S1**	*ceramic tiles*	*grout* **Ultracolor Plus**	*sealant* **Mapesil AC**

10/19 REV 3

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

B. ***MAPEI Technical Notebook(s):***

1. Waterproofing Baths and Swimming Pools
2. Guide for the Installation of Ceramic Materials
3. MAPEI Ceramic Substrate Preparation Guide

1.2 SUBSTRATE PREPARATION

Substrates (e.g. concrete, shotcrete) must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 SCREED – FLOOR

- **NOTE:** Prior to the application of the screed, ensure all pipe penetrations, light fittings, water circulation and filtration units are appropriately detailed. Contact Mapei Technical Assistance for more information if required.

Screed to be chosen from the following options:

A. **TOPCEM PRONTO (209-7-2017 AUS)** **- GOOD SOLUTION**

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds.

B. **MAPECEM PRONTO (210-07-2017 AUS)** **- BEST SOLUTION**

1. Pre-blended, ready-to-use, quick-setting and drying (24 hours), controlled-shrinkage mortar for screeds.

- **APPLICATION:**
  - ◊ Ensure a slurry coat of **PLANICRETE SP** (700-6-2016) mixed with either **MAPECEM** (201-02-2017 AUS) or **TOPCEM** (207-02-2017 AUS) has been applied depending on which product is chosen. Refer to the TDS for mixing details,
  - ◊ Ensure screed is applied over the slurry coat whilst the slurry coat is still wet.
  - ◊ Mix and apply screed in accordance with the TDS, paying attention to the surrounding environmental conditions. Ensure a minimum thickness of 10 mm is applied.

1.4 SMOOTHING MORTAR – WALL

- **NOTE:** Prior to the application of the smoothing mortar, ensure all pipe penetrations, light fittings, water circulation and filtration units are appropriately detailed.

Smoothing mortar to be chosen from the following options:

A. **PLANITOP FAST 330 (2608-3-2017 GB)** **- GOOD SOLUTION**

1. Quick setting, fibre reinforced cementitious mortar for internal and external floors and walls, applied at a thickness from 3 to 30 mm to smooth out irregularities.

B. **PLANITOP SMOOTH & REPAIR R4 (1136-9-2014)** **- BEST SOLUTION**

1. Structural R4-class, rapid setting, shrinkage compensated, thixotropic, fibre reinforced, cementitious mortar, applied in a single layer from 3 to 40 mm thick for repairing and smoothing concrete.

- **APPLICATION:**
  - ◊ Ensure substrate is prepared in accordance with the TDS to have a roughened surface that has been saturated and left for excess water to evaporate.
  - ◊ Apply a feather edge layer to the substrate and then immediately apply a layer at the thickness required.

1.5 WATERPROOFING MEMBRANE

- **NOTE:** Prior to the application of the waterproofing membrane:
  - ◊ **Junctions Option A:** Apply a bond breaker/tape with **MAPEBAND** (337-3-2018 GB) or **MAPEBAND EASY** (7631-6-2017 GB) at wall/wall, wall/floor junctions and all other areas where movement is expected.
  - ◊ **Junctions Option B:** Apply a flexible fillet with **MAPEFLEX PU 45 FT** (8102-10-2016 GB) with the membrane reinforced with **MAPETEX SEL** (911-12-2018 GB) at all junctions and other areas where movement is expected.

Waterproofing to be chosen from the following options:

A. MAPELASTIC SMART (2013-03-2018 AUS)

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing balconies, terraces, bathrooms and swimming pools.

B. MAPELASTIC FOUNDATION (2069-6-2019 GB) – For negative hydrostatic pressure

1. Two component, flexible cementitious membrane for waterproofing concrete surfaces subject to both positive and negative water pressure.

- **NOTE:** Before applying the **MAPELASTIC FOUNDATION**, apply a coat of **PRIMER 3296** (550-11-2003) with a brush or roller, diluted 1:1 with water.

- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or roller within 60 minutes of it being mixed. Waterproofing membrane applied at a thickness of at least 1 mm per coat.
  - ◊ It is recommended to lay **MAPENET 150** (914-2-2017 GB) alkali-resistant glass fibre mesh or a reinforcement fabric with **MAPETEX SEL** (911-12-2018 GB), into the wet first coat of the waterproofing membrane, ensuring it is completely embedded, in strict accordance with the TDS.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with the TDS.
  - ◊ Wall waterproofing membrane to be returned down across the floor substrate over the cured bond breaker/tape or flexible fillet.

1.6 OSMOTIC CEMENTITIOUS MORTAR – SCUM GUTTERS, IF REQUIRED

A. IDROSILEX PRONTO (306-4-2014 GB) [Also known as PLANISEAL 88]

1. Osmotic cementitious mortar suitable for contact with drinking water, for rigid waterproofing masonry and concrete structures.

- **APPLICATION:**
  - ◊ Apply mortar with a brush or trowel in a minimum of 3 coats.
  - ◊ Ensure previous coat is sufficiently dry before subsequent applications.
  - ◊ Observe the area to determine if a fourth coat is required.
  - ◊ The final thickness should be a minimum of approximately 2-3 mm.

1.7 ADHESIVE

- **NOTE: KERAPOXY OR KERAPOXY DESIGN** is recommend as an adhesive for finger grips where applicable.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. With moisture transportation being the driving force, to assist in mitigating the potential for efflorescence it is recommended to use a two-component adhesive (mixed with a latex) to reduce the permeability of the system. Furthermore, voids behind the tile must be avoided by maximising adhesive coverage.

Adhesive to be chosen from the following options:

Normal set

A. KERAFLEX MAXI S1 (74-04-2017 AUS) - GOOD SOLUTION

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

B. ULTRALITE S1 (71-05-2019 AUS) - GOOD SOLUTION

1. One-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and long open time and extremely high yield. Easy to apply by trowel with excellent wetting properties, very low emission of volatile organic compounds for ceramic tiles, stone and thin porcelain tiles.

C. KERABOND PLUS + ISOLASTIC (87-02-2017/112-1-2018 GB) - BETTER SOLUTION

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stones with a latex additive to elasticize the adhesive.

Rapid set

D. KERAQUICK S1 (103-06-2016 AUS) - GOOD SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material.

E. KERAQUICK S1 + LATEX PLUS (103-06-2016 AUS, 114-3-2014) - BETTER SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B* stones) with a latex additive to further elasticize the adhesive.

Resin-based

F. KERAPOXY ADHESIVE (144-11-2017 GB) - BEST SOLUTION

1. Two-component, epoxy adhesive with no vertical slip for ceramic tiles and stone material.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Adhesive should also be pressure applied to the back of the tile/stone with a thin coat using the straight edge of the trowel (*back-buttering*).
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the tile/stone firmly into position wet-on-wet with a slight back and forward motion perpendicular to the trowel lines to collapse the notches.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.8 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.
- **NOTE: KERAPOXY** is especially recommended in spill over, wet edges, and exposed wall areas.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. To assist in mitigating efflorescence, it is recommended to use **ULTRACOLOR PLUS** or **KERAPOXY** as they both do not contain Portland cement, which is the source of efflorescence.

Grout to be chosen from the following options:

A. KERACOLOR RANGE **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. ULTRACOLOR PLUS (2801-3-2018 GB) **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. KERAPOXY (141-11-2016) **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm. May also be used as a tile adhesive.

- **APPLICATION:**
  - ◊ Prepare and mix grout in strict accordance to the packaging and TDS.
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.
  - ◊ Complete final cleaning of the grout in accordance with the product TDS.

1.9 SILICONE

- **NOTE:** Prior to application of the silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the tile.

A. MAPESIL AC (401-4-2017 GB)

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints to be installed in accordance with AS 3958.1.

MAPEI provides technical data sheets (TDS) for all products which should be read in conjunction with this WMS. The TDS can be obtained from www.mapei.com.au or by clicking directly on the listed products within the PDF.
This Work Method Statement (WMS) provides general recommendations only and is not intended to be interpreted as a generic specification for the application/installation of the listed products. As each project differs in exposure and site conditions, specific recommendations may vary from the information contained above. For recommendations for specific applications/installations please contact MAPEI Australia Pty Ltd.

When adding chemicals to the spa and/or pool, ensure they are diluted with water, and are NOT poured directly onto any sections of the covering (e.g. tiles, grout, joints etc.), as this can damage the integrity of the product.

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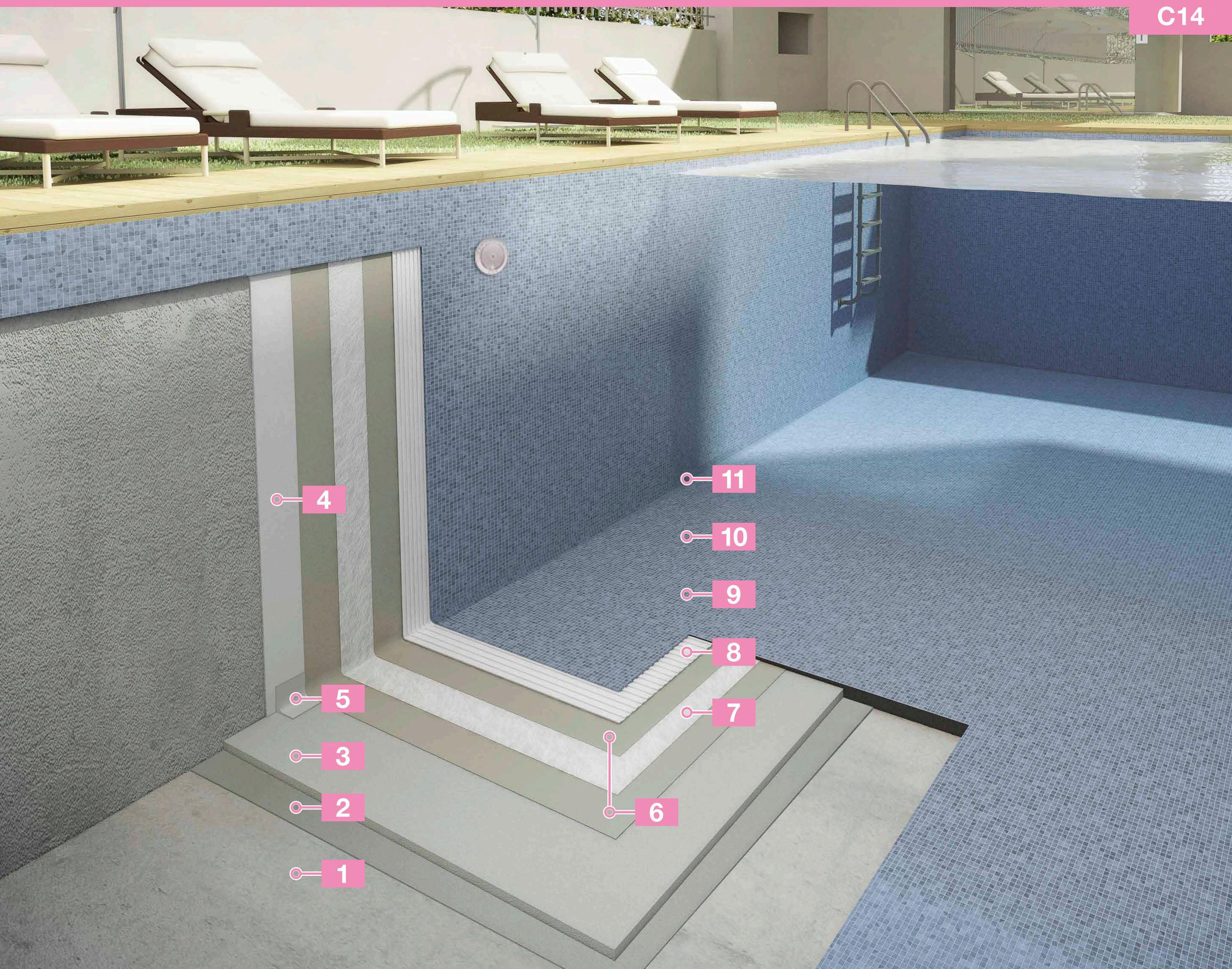


1	2	3	4	5	6	7	8	9	10	11
concrete structure *reinforced*	*bonding slurry* **Planicrete SP** *mixed with* **Topcem**	*screed* **Topcem Pronto**	*cementitious render* **Planitop Smooth & Repair R4**	*monolithic sealing of the coving to the substrate* **Eporip** *and* **Mapegrout T40**	*cementitious waterproofer* **Mapelastic Smart**	*polypropylene fabric* **Mapetex Sel**	*adhesive* **Kerabond Plus** *and* **Isolastic**	*glass mosaics*	*grout* **Kerapoxy Design**	*sealant* **Mapesil AC**

10/19 REV 2

Please refer to the corresponding Work Method Statement for complete list of suitable products and installation information

PART 1 SYSTEM

1.1 REFERENCES

A. ***Australian Standard(s):***

1. AS 3958.1-2007 – Ceramic Tiles; Part 1: Guide to the Installation of Ceramic Tiles

B. ***MAPEI Technical Notebook(s):***

1. Waterproofing Baths and Swimming Pools
2. Guide for the Installation of Ceramic Materials
3. MAPEI Ceramic Substrate Preparation Guide

1.2 SUBSTRATE PREPARATION

Substrates (e.g. concrete, shotcrete) must be structurally sound, dry, solid and stable. Any laitance, dust, grease, oil, paint or curing compounds present on the surface of the concrete substrate that may inhibit bond, shall be mechanically removed. The substrate should then be cleaned and prepared in accordance with the relevant standards and as per the MAPEI technical data sheets (TDS).

1.3 SCREED – FLOOR

- **NOTE:** Prior to the application of the screed, ensure all pipe penetrations, light fittings, water circulation and filtration units are appropriately detailed. Contact Mapei Technical Assistance for more information if required.

Screed to be chosen from the following options:

A. **TOPCEM PRONTO (209-7-2017 AUS)** **- GOOD SOLUTION**

1. Ready-to-use normal setting, controlled-shrinkage mortar for quick-drying screeds.

B. **MAPECEM PRONTO (210-07-2017 AUS)** **- BEST SOLUTION**

1. Pre-blended, ready-to-use, quick-setting and drying, controlled-shrinkage mortar for screeds.

- **APPLICATION:**
  - ◊ Ensure a slurry coat of **PLANICRETE SP** (700-6-2016) mixed with either **MAPECEM** (201-02-2017 AUS) or **TOPCEM** (207-02-2017 AUS) has been applied depending on which product is chosen. Refer to the TDS for mixing details. Ensure screed is applied over the wet slurry coat.
  - ◊ Mix and apply engineered screed in strict accordance with the TDS, paying attention to the surrounding environmental conditions. Ensure a minimum thickness of 10 mm is applied.

1.4 SMOOTHING MORTAR – WALL

- **NOTE:** Prior to the application of the smoothing mortar, ensure all pipe penetrations, light fittings, water circulation and filtration units are appropriately detailed.

Smoothing mortar to be chosen from the following options:

A. **PLANITOP FAST 330 (2608-3-2017 GB)** **- GOOD SOLUTION**

1. Quick setting, fibre reinforced cementitious mortar for internal and external floors and walls, applied at a thickness from 3 to 30 mm to smooth out irregularities.

B. **PLANITOP SMOOTH & REPAIR R4 (1136-9-2014)** **- BEST SOLUTION**

1. Structural R4-class, rapid setting, shrinkage compensated, thixotropic, fibre reinforced, cementitious mortar, applied in a single layer from 3 to 40 mm thick for repairing and smoothing concrete.

- **APPLICATION:**
  - ◊ Apply a feather edge layer to the substrate and then immediately apply a layer at the thickness required.
  - ◊ Ensure substrate is prepared in accordance with the TDS to have a roughened surface that has been saturated and left for excess water to evaporate.

1.5 COVE FILLET – WHERE REQUIRED

A. MAPEGROUT T40 | EPORIP (308-10-2017 AUS / 366-7-2013)

1. Medium strength (40 MPa), shrinkage compensated, fibre reinforced, thixotropic mortar for repairing concrete, with a two component, solvent free epoxy adhesive for construction joints and for monolithic sealing of cracks in screeds.

- **APPLICATION:**
  - ◊ Apply **EPORIP** to slightly damp substrate using a flat trowel or brush, ensuring subsequent products are applied within the open times listed on the TDS.
  - ◊ Apply **MAPEGROUT T40** over the **EPORIP** using a flat trowel.

1.6 WATERPROOFING MEMBRANE

Waterproofing membrane to be chosen from the following options:

A. MAPELASTIC SMART (2013-03-2018 AUS)

1. Two component, high flexibility cementitious mortar (with crack-bridging capacity >2 mm) applied by trowel or roller for waterproofing swimming pools.

B. MAPELASTIC FOUNDATION (2069-6-2019 GB) – For negative hydrostatic pressure

1. Two component, flexible cementitious membrane for waterproofing concrete surfaces subject to both positive and negative water pressure.

- **NOTE:** Before applying the **MAPELASTIC FOUNDATION**, apply a coat of **PRIMER 3296** (550-11-2003) with a brush or roller, diluted 1:1 with water.
- **APPLICATION:**
  - ◊ Waterproofing membrane must be applied in at least two coats by trowel or roller within 60 minutes of it being mixed. Waterproofing membrane applied at a thickness of at least 1 mm per coat.
  - ◊ It is recommended to lay **MAPENET 150** (914-2-2017 GB) alkali-resistant glass fibre mesh or a reinforcement fabric with **MAPETEX SEL** (911-12-2018 GB), into the wet first coat of the waterproofing membrane, ensuring it is completely embedded, in strict accordance with the TDS.
  - ◊ Floor waterproofing membrane to be returned up wall substrates over the bond breaker/tape or flexible fillet in accordance with the TDS.
  - ◊ Wall waterproofing membrane to be returned down across the floor substrate over the cured bond breaker/tape or flexible fillet.

1.7 OSMOTIC CEMENTITIOUS MORTAR – SCUM GUTTERS, WHERE REQUIRED

A. IDROSILEX PRONTO (306-4-2014 GB) [Also known as PLANISEAL 88]

1. Osmotic cementitious mortar suitable for contact with drinking water, for rigid waterproofing masonry and concrete structures.

- **APPLICATION:**
  - ◊ Apply mortar with a brush or trowel in a minimum of 3 coats.
  - ◊ Ensure previous coat is sufficiently dry before subsequent applications.
  - ◊ Observe the area to determine if a fourth coat is required.
  - ◊ The final thickness should be a minimum of approximately 2-3 mm.

1.8 ADHESIVE

- **NOTE: KERAPOXY OR KERAPOXY DESIGN** is recommend as an adhesive for finger grips where applicable.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. With moisture transportation being the driving force, to assist in mitigating the potential for efflorescence it is recommended to use a two-component adhesive (mixed with a latex) to reduce the porosity of the system. Furthermore, voids behind the tile must be avoided by maximising adhesive coverage.

Adhesive to be chosen from the following options:

Normal-Set

A. KERAFLEX MAXI S1 (74-04-2017 AUS) - GOOD SOLUTION

1. High performance, deformable cementitious adhesive with an extended open time and no vertical slip, for ceramic tiles. Especially suitable for the installation of large porcelain tiles and natural stone (non-moisture sensitive).

B. ULTRALITE S1 (71-05-2019 AUS) - GOOD SOLUTION

1. One-component, high-performance, flexible, lightweight, cementitious adhesive with no vertical slip and long open time and extremely high yield. Easy to apply by trowel with excellent wetting properties, very low emission of volatile organic compounds for ceramic tiles, stone and thin porcelain tiles.

C. KERABOND PLUS + ISOLASTIC (87-02-2017)/112-1-2018 GB) - BETTER SOLUTION

1. Cement based powder with superior bond strength suitable for all types of tiles and natural stones with a latex additive to elasticize the adhesive.

Fast-Set

D. GRANIRAPID (113-2-2014) - GOOD SOLUTION

1. Two component high performance fast setting and hydrating cementitious adhesive for ceramic tiles and stone materials (Class A/B* stones).

E. KERAQUICK S1 + LATEX PLUS (103-06-2016 AUS, 114-3-2014) - BETTER SOLUTION

1. High performance, deformable, fast setting cementitious adhesive with no vertical slip, for ceramic tiles and stone material (Class A/B* stones) with a latex additive to further elasticize the adhesive.

Resin-Based

F. KERAPOXY (141-11-2016) OR KERAPOXY DESIGN (149-11-2016) - BEST SOLUTION

1. Two component, acid resistant epoxy grout for joints of at least 3 mm **OR** Two component, decorative, acid resistant epoxy grout, ideal for glass mosaics. Both may also be used as an adhesive.

- **APPLICATION:**
  - ◊ Prepare and mix adhesive in strict accordance to the packaging and TDS.
  - ◊ To ensure good adhesion, apply with pressure a thin coat of the adhesive with the straight edge of the trowel. Immediately follow this with a layer of adhesive at the correct thickness using a suitable notched trowel.
  - ◊ Ensure the adhesive stays "*fresh*" and does not form a skin, especially in hot environments, prior to the application of the tile/stone.
  - ◊ Place the sheet of mosaics tiles into position, pressing firmly to ensure good coverage and to create a flat surface.
  - ◊ It is recommended to periodically remove and assess adhesive coverage. Continue if acceptable, otherwise reassess trowel and application technique.

1.9 GROUT

- **NOTE:** Prior to the application of the grout, ensure the joints are clean, free of dust and empty down to at least 2/3 of the thickness of the tiles. It is then suggested to carry out a 1 m^2 sample area for approval by the architect.
- **NOTE: KERAPOXY OR KERAPOXY DESIGN** is especially recommended in spill over, wet edges, and exposed wall areas.
- **NOTE:** Efflorescence is a natural process with all products that contain Portland cement. To assist in mitigating efflorescence, it is recommended to use **ULTRACOLOR PLUS**, **KERAPOXY**, or **KERAPOXY DESIGN** as they both do not contain Portland cement, which is the source of efflorescence.

Grout to be chosen from the following options:

A. KERACOLOR RANGE **- GOOD SOLUTION**

1. High performance, polymer-modified, cement-base grouts.

B. ULTRACOLOR PLUS (2801-3-2018 GB) **- BETTER SOLUTION**

1. High-performance, anti-efflorescence, quick-setting and drying polymer-modified mortar with water-repellent technology

C. KERAPOXY (141-11-2016) OR KERAPOXY DESIGN (149-11-2016) **- BEST SOLUTION**

1. Two component, acid resistant epoxy grout for joints of at least 3 mm **OR** Two component, decorative, acid resistant epoxy grout, ideal for glass mosaics.

- **APPLICATION:**
  - ◊ Prepare and mix grout in strict accordance to the packaging and TDS.
  - ◊ Fill the joints completely with the grout using the appropriate trowel or rubber float, ensuring the joints are completely compacted with no unevenness.
  - ◊ Remove excess grout while still fresh from the surface of the tile/stone by moving the float diagonally across the joints.
  - ◊ Complete final cleaning of the grout in accordance with the product TDS.

1.10 SILICONE

- **NOTE:** Prior to application of the silicone, it is recommended that the silicone is applied in a test area to be approved by the client and to ensure it doesn't stain the tile.

A. MAPESIL AC (401-4-2017 GB)

1. Solvent-free, acetic crosslinking mildew resistant silicone sealant.

- **APPLICATION**
  - ◊ Movement joints to be installed in accordance with AS 3958.1.

SURFACE PREPARATION REQUIREMENTS
Ceramic and Stone Installation Systems

Doc No: MK677430
Version: 14/06/2018
Revision: 0

INTRODUCTION

The aim of this document is to offer guidelines to help correctly prepare substrates for the successful subsequent application of ceramic and stone floor coverings.

Fundamentally, an installed system is only as strong as the strength of the weakest bond between two successive layers. The correct preparation of the substrate is the first major step in achieving successful adhesion.

The correct method of preparing the substrate will differ depending on the substrate material, characteristics, and site conditions. As such, specific recommendations may vary from the information contained in this document. However, the recommendations listed are appropriate in their defined applications.

Consult MAPEI's technical representatives for installation recommendations regarding substrates and conditions not listed in this guide.

ENVIRONMENTAL REQUIREMENTS

- Maintain adequate environmental conditions and protect work during and after installation. Where necessary, build temporary shelter and/or use indirect auxiliary heaters to maintain suitable temperature levels in the working environment.
- Maintain substrate and ambient temperatures in tiled areas at between 5°C and 35°C during installation and for at least 7 days after completion, unless otherwise indicated in the product instructions. Both temperature and humidity have an effect on how products cure and develop strength.
- Turn off all forced ventilation and protect the work against drafts during installation and for at least 72 hours after completion.
- Comply with trade and industry standards, construction work health and safety, and any manufacturer's printed recommendations throughout the works.
- Consider the surrounding environment by disposing of any harsh chemicals, materials, and products in the appropriate manner.

JOBSITE EXAMINATION

Before work commences, examine the areas which are to receive tiling and report any deficiencies or adverse conditions in writing to the general contractor, owner, developer or architect. Do not proceed with work until surfaces and conditions comply with the requirements indicated in the manufacturer's instructions, applicable industry standard, federal, state, local regulations and good work practices. The commencement of work indicates that the applicator/user acknowledges the substrate and conditions as acceptable for installation.

SURFACE PREPARATION

1. General

1.1 All substrates must be structurally sound, dry, solid and stable. The substrate should be clean and free of dust, dirt, oil, grease, standing water, laitance, old paint, curing compounds, concrete sealers, loosely bonded toppings, release agents, old adhesive residues (unless otherwise recommended by MAPEI) and any other deleterious substance or contaminate that may prevent or reduce adhesion. If the substrate contains these substances, they must be removed via mechanical means.

1.1.1 **Warning:** Do not install over vinyl asbestos tile (VAT) or any flooring, substrate or substance that may contain asbestos. For removal instructions, refer to the Resilient Floor Covering Institute's Recommended Work Practices and follow all local, state and federal regulations and industry standards when mechanical removal is required.

1.1.2 **Warning:** Certain paints may contain lead. Exposure to excessive amounts of lead dust presents a health hazard. Refer to applicable federal, state and local laws regarding the appropriate methods for identifying and removing lead-based paint.

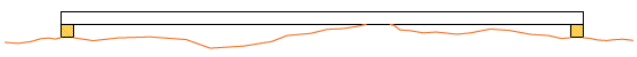
1.2 Examples of mechanical preparation include diamond grinders, scarifiers, water-jet blasting, sanding, and shot blasters. When installations are to be performed on timber floors use floor sanders. The final process in mechanical preparation is vacuum cleaning and the use of a damp cloth/sponge/mop to remove loose particles.

1.2.1 Acid etching or the use of harsh chemicals to prepare surfaces is not recommended. These can potentially leave a deleterious residue on the substrate.

1.3 Imperfections and irregularities that may interfere with the installation (holes, voids, bumps, cracks, depressions, etc.) must be corrected before the application of subsequent products. MAPEI has a complete range that can selected from our website at www.mapei.com.au.

1.4 The maximum variation in plane limits (AS 3958.1-2007):

- Thin-bed adhesive: 5 mm over 3 m
- Thick-bed adhesive: 10 mm over 3 m
- Screed: 20 mm over 3 m
- Walls: 4 mm in 2 m



1.5 Substrate deflection must not be excessive. If in doubt, refer to an engineer or substrate manufacturer. Under live, dead, or impact actions including concentrated loads, deflection must not not exceed L/360.

1.6 Any joints in the substrate must be appropriately treated or carried through into the tiling works as a movement joint.

1.7 Suitability and compatibility of any proprietary substrate to receive tiling products should be recommended by the manufacturer and tested in an inconspicuous location before the full installation.

1.8 If tiling in a wet area, the area may require waterproofing. Refer to AS 3740-2010, AS 4654.2-2012, and the National Construction Code (NCC) for more information. MAPEI have a complete range of waterproofing products that can be selected from our website at www.mapei.com.au.

2. Concrete

2.1 Concrete substrates must be structurally sound, dry, solid and stable and the surface prepared to the requirements of AS 3958.1-2007.

2.2 New Concrete

2.2.1 Drying and shrinkage cracks occur as the concrete cures. Installing products over “green” concrete may result in cracks telegraphing through the tiling works as they develop in the concrete. To avoid this, wait at least 4-6 weeks as per AS 3958.1-2007, and repair cracks as per section 2.4.

2.2.2 Concrete shall be sufficiently dry. External areas may experience water infiltration or be exposed to rain which can re-saturate the concrete, increasing drying times. High moisture may increase a products curing time and the possibility of efflorescence.

2.2.3 Concrete slabs should be installed over an acceptable and effective vapour barrier as per Australian Standards.

2.2.4 It is recommended to waterproof concrete swimming pools with **Mapelastic Smart** to increase the durability of the system.

2.3 Cracked, Damaged, or Spalling Concrete

2.3.1 All unsuitable surfaces must be removed down to a solid and clean substrate. Use a hammer to sound out weak, hollow and unsound material. Where cracks are located in the concrete substrate, they should be opened via mechanical means (grinder), then cleaned and vacuumed. These cracks must then be filled using MAPEI **Eporip** or **Epojet**, in accordance with the relevant TDS, and the surface broadcast with sand to aid the bonding of subsequent products.

2.4 Curing Compounds, Release Agents, Silicates Densifiers

2.4.1 These act as bond breakers, inhibiting the ability of products to bond and also affect curing times. All curing compounds, release agents, and silicate densifiers, irrespective of their type, (including dissipating curing compounds) must be mechanically removed. Conduct a water-drop test to test porosity and the presence of a topical product.

2.5 Contaminated Surfaces

2.5.1 Concrete substrates that are covered/coated in dirt, oil, grease, paint, laitance, old adhesive residue and any other substance that may prevent or reduce adhesion must be removed. Materials used to remove oils and grease may also prevent adhesion, therefore, it is recommended to complete mechanical removal down to solid, sound, and uncontaminated concrete.

2.6 Surface Profile

2.6.1 For an excellent bond to concrete, it’s important for the surface to have an adequate concrete surface profile (CSP) to promote bonding. The concrete should be finished with a screed, wood float, broom, or power float type finish. This equates to a CSP of #1 to #3 for tile adhesives. Steel-trowelled slabs are more difficult to adhere to and it is recommended to mechnically prepare.

2.7 Surface Planarity

2.7.1 Should the concrete be out of level or not suffciently flat on internal substrates, the substrate can be primed with **Eco Prim T Plus** and levelled with **UC Leveller**. For external substrates, **Adesilex P4 + Latex Plus** can be used. If the height is permissable, installing a screed is an option. A levelled surface is especially important using large format tiles.

3. Screeds / Mortar Beds

3.1 Sand-cement screeds should generally incorporate a latex additive (such as **Planicrete SP**) and should be installed as per the guidelines in Appendix A of AS 3958.1-2007.

3.2 AS 3958.1-2007 states that sand-cement screeds should be “cured for at least 7 days and be subjected to continuous air-drying after curing for at least 2 weeks before tiling”. Screed subfloors shall be sufficiently dry with a moisture content of less than 5.5% as per AS 3958.2-1992.

3.3 Alternatively, engineered screed products such as **Topcem Pronto** and **Mapecem Pronto** can be used to facilitate a controlled and rapid installation. Refer to the products TDS for installation and curing times.

3.4 If the full depth of a concrete substrate is contaminated (e.g. oil) or if it is particularly prone to cracking or movement, an unbonded screed is preferred. Use a layer of 200 µm polythene sheet or similar material to separate the substrate.

3.5 For large areas, control joints should be incorporated to match the specified movement joints in the tiling works.

3.6 In external or internal wet areas, incorporate falls in the screed as required by the Australian Standards and Building Code of Australia.

4. Blockwork and Rendered Wall Substrates

4.1 Brush and wash any loose dirt or render with a hard bristle broom. Ensure the joints are also raked of any loose material. If the surface is painted, scratch the surface to remove any loose paint, flakes or dust.

4.2 Blockwork substrates should be rendered with **Planitop Fast 330** to fill in any mortar joints and to provide a suitably rendered finish prior to tiling. Maximum variation in plane of 4 mm in 2 metres.

4.3 On external walls, waterproofing with **Mapelastic Smart** may be applied to aid in minimising efflorescence and to assist with the durability of the system.

4.4 For external façade tiling, ensure the render and substrate achieve a minimum tensile strength of at least 1 MPa.

5. Autoclaved Aerated Concrete (AAC) and Lightweight Concrete Blocks

5.1 These substrates generally have low mechanical strengths and are susceptible to high point loads. They should generally only be used in internal residential environments. Follow the recommendations from the manufacturer.

5.2 Due to their porous nature, prime with **Eco Prim T Plus** or **Primer 3296** diluted with 1-2 parts water. Use two coats of primer if necessary. Ensure no puddling occurs.

5.3 AAC is not an acceptable substrate for direct tiling on external facades. A solution is to render (minimum 10 mm thick) and incorporate reinforced galvanized mesh fastened mechanically to the structure.

6. PVC Proprietary Wall Systems

6.1 Prior to tiling, these systems must be mechanically scratched using a diamond disk on a low speed grinder to create a keyed finish. Ensure the grinder does not burnish the substrate due to high speeds.

6.2 Ensure substrate is clean.

6.3 PVC can be a difficult substrate to bond to, as such, resin-based adhesives (**Keralastic T**) or a waterproofing membrane with **Mapelastic Smart** should be applied.

7. Fibre Cement Sheet (CTU, CFC, FC Boards) and Plasterboard

7.1 Fibre cement sheeting and plasterboard must comply with the applicable Australian Standards and must be installed as per the manufacturer's recommendations. Ensure the sheeting is suitable for the intended tiling system and application environment.

7.2 Most sheets have a surface layer of dust that must be removed by wiping down with a damp cloth or mop and allowed to dry.

7.3 FC sheets to have a minimum thickness of 6 mm for residential floor & wall applications, and a minimum 9 mm for wall tiling in heavy-duty commercial applications. CFC sheets should be minimum 15 mm thick for floor tiling (AS 3958.1).

7.4 Highly absorbent substrates which have not been sealed should be primed with **Eco Prim T Plus** or **Primer G** so that the adhesive curing isn't adversely affected.

8. Timber, Plywood and Particleboard

8.1 Wood based substrates are generally sensitive to moisture which can lead to issues such as warping and instability. Extra care is need when attempting to tile on these substrates.

8.2 All wood underlayments must be recommended and guaranteed by the wood underlayment manufacturer and the floor-covering manufacturer, and comply with the applicable Australian Codes and Standards.

8.3 Stripwood subfloors, presswood, chipboard, flakeboard and similar types of dimensionally unstable materials are generally not acceptable substrates for the installation of surface preparation products and adhesives.

8.4 Plywood surfaces must be installed with the smooth side facing up and have a minimum thickness of 10 mm.

8.5 Do not install over a subfloor that is in direct contact with the ground. Good ventilation is essential under wood substrates to prevent distortion, decay, and excessive movement. The requirements of the relevant local regulatory authority for underfloor clearance and provision of ventilators shall be followed. In the absence of such requirements, precautions outlined in AS 3958.1-2007 must be followed.

8.6 Under no circumstances should any floor material be laid over wood underlayments or subfloors that are under

conditions that might cause buckling or rotting of the wood. Always replace wood subfloors or underlayments that have been subject to water damage.

9. Gypsum Substrates

9.1 All gypsum substrates must be dry, clean, flat and properly primed with a manufacturer recommended primer such as MAPEI's **Primer G**, **Eco Prim T Plus** or **Eco Prim Grip**. Refer to relevant MAPEI Technical Data Sheets.

9.1.1 Note: Un-primed gypsum substrates may leave a dusty residue on the surface and have a slightly higher porosity factor that could affect the adhesive's open time and weaken the adhesive bond. A complete installation failure may occur if the substrate is not properly primed prior.

9.2 Allow the applied primer to dry completely before installation of adhesives or waterproofing.

10. Metal Substrates

10.1 Metal substrates must be rigid, solidly fixed in place, and free of paint, primer, oil, rust, corrosion or other contaminants. Ensure the metal has been treated with a suitable rust treatment.

10.2 A resin-based adhesive such as **Keralastic T** is recommended over metal substrates.

11. Existing Floor Coverings

11.1 Ceramic tiles, porcelain tiles and cement terrazzo must be firmly bonded, clean, and free of dust, dirt, oil, grease, paint, wax, sealer, soap and any other substance that may prevent or reduce adhesion. The existing tiles can be slightly roughened by mechanical means. Any loose tiles or grout joints should be removed and filled with **Adesilex P4**. The area must then be vacuumed, mopped and allowed to dry prior to the application of **Eco Prim Grip**.

11.2 It is possible to tile over vinyl sheet or tiles (non-cushioned backed) in residential environments providing that they are firmly bonded, clean, and free of contaminants. Sand the vinyl to provide a mechanical key. Use **Keralastic T** or **Keraquick S1 + Latex Plus** to tile over these substrates. Alternatively, **Mapeprim SP** can be used to prime the vinyl. For commercial environments it is recommended to remove the vinyl flooring.

11.3 The following existing floor coverings are generally not acceptable for the installation of surface preparation products and adhesives: self-stick tile, glass tile, linoleum, laminate, fibreglass, poured epoxy floors and other dimensionally unstable and/or non-porous materials. These should be removed back to the structural substrate, or consult a MAPEI technical representative for more information.

11.3.1 **Warning:** Do not sand or remove any existing resilient floors or cutback adhesive that contains asbestos fibres or crystalline silica. Follow all local, state and federal regulations and industry standards when mechanical removal is required.

11.4 Refer to Technical Data Sheets for details on MAPEI product suitability over existing floor covering.

12. Tiling System Selection

12.1 To ensure a successful tiling installation, the correct selection of the system components is essential. Refer to the MAPEI Adhesive and Selection Guide or MAPEI's Work Method Statements (WMS), both which can be found at www.mapei.com.au.

13. Test Area

This guide is to be used as a general reference for preparing substrates to receive MAPEI products. The objective was to present a large variety of substrate conditions, however, it is not possible to define and specify every possible situation that may occur on site.

As such, it is strongly recommended to complete a test area on site in order to ensure suitability of the preparation.

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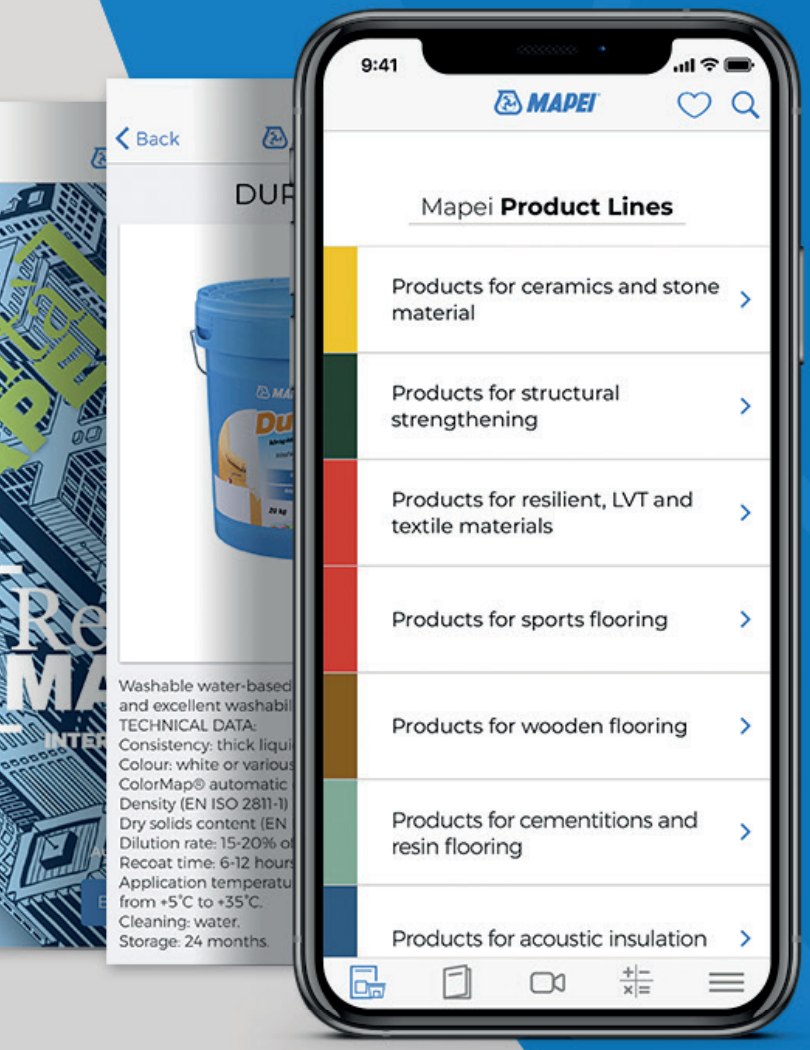

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