Technical design guide
for WATERPROOFING
INTRODUCTION

MAPEI, world leader in the production of adhesives and chemical products for the building industry, has always invested considerable resources into research and development with the aim of constantly developing cutting-edge solutions to be integrated into executive projects.

And this is what convinced MAPEI to make their technological know-how available in a simple, clear and readily available format to guide their customers through the maze of their product ranges, and illustrate their characteristics, functions and application methods.

With this aim in mind, this document is intended to be a handy guide and support for designers and clients alike, to reduce problems caused by either incorrect or inaccurate technical specifications during the design phase and by errors during application or a lack of attention to detail. In fact, with their eye for detail, MAPEI clearly demonstrates their know-how by offering simple, sound technical solutions.

To make it easier to consult this manual, there are two images at the start of the document that show the various areas of intervention and an index of the details. The manual is then sub-divided into two sections. The first, indicated with a red bookmark, discusses construction details for waterproofing new buildings, while the second section, indicated with a yellow bookmark, covers repair work. At the end of the manual, there is also an overview of all the products from the range which are used.

For further information about each of the products mentioned in the technical specifications, consult the relative Technical Data Sheet on the MAPEI website www.mapei.it.

NOTE: The products presented below are those used for waterproofing new and existing constructions. For products not covered by this waterproofing range manual, please refer to the general products catalogue. The Company’s Technical Services Department is at your complete disposal for further information on the characteristics and application techniques applicable to our products, and for suggestions on how to solve a wide range of technical problems, including the design of construction details.
### Technical design guide
for WATERPROOFING

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**NEW CONSTRUCTIONS**

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### REPAIRING

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Sealing of well pumping

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NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Piles waterproofing

Code: ATE N SQ 002

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. IDROSTOP B25
8. Piles
9. Regularization with a suitable product of the Maeproduct range
10. Steel bars
Technical design guide for WATERPROOFING

Pipe penetration detailing

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Waterproofing concrete slab (connected with soil retaining walls) and walls

Code: ATE N SQ 004

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. DROSTOP B25
8. Soil retaining wall
9. Steel bars
10. MAPEPROOF MASTIC
11. MAPEFIX VE SF

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Waterproofing concrete slab and walls

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. IDROSTOP B25
8. Soil retaining wall
9. Steel bars

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
**Elevator shaft**

**Code:**

**ATE N SQ 006**

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. IDROSTOP B25
8. Steel bars

**NEW CONSTRUCTIONS**

**BELOW GROUND LEVEL**
Foundations piles -
solution 1

Code:
ATE N SQ 007

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. MAPEPROOF MASTIC
7. Steel bars
8. Foundation piles

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Foundation piles -

solution 2

Code:

ATE N SQ 008

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. MAPEPROOF MASTIC
7. Reinforcing rods
8. Foundation piles
9. MAPEGROUT HI-FLOW + 0.25% MAPECURE SRA
10. IDROSTOP B25
11. MAPEPROOF SEAL

NEW CONSTRUCTIONS

BELOW GROUND LEVEL
MAPEPROOF post-casting

Code: ATE N SQ 009

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. PROSTOP B25
8. Connection made with MAPECROUT or PLANITOP
9. Protection layer
10. Reinforcing rods

NEW CONSTRUCTIONS
BETWEEN GROUND LEVEL
**Construction joint**

**Code:**

ATE N SQ 010

1. Soil
2. Poor concrete
3. Concrete slab
4. Reinforcing rods
5. DROSTOP B25
6. Formwork
7. Space bars
8. Metal framwork

NEW CONSTRUCTIONS

BELOW GROUND LEVEL
MAPEPROOF on slab and MAP. FOUNDATION on wall

Code:
ATE N SQ 011

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. IDROSTOP B25
8. MAPEPROOF MASTIC
9. MAPELASTIC FOUNDATION
10. Protection layer
11. Steel bars

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Slab cast with formworks

Code:
ATE N SQ 012

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Formwork

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Sealing of penetration pipe

Code: ATE N SQ 013

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. MAPEPROOF SEAL
7. IDROSTOP B25
8. MAPEPROOF MASTIC
9. Pipe

BELOW GROUND LEVEL
NEW CONSTRUCTIONS
Piles waterproofing: top beam detail

1. Pile
2. Regularization with a suitable product of the Maegroth range
3. MAPEPROOF
4. Concrete wall
5. DROSTOP B25
6. MAPELASTIC FOUNDATION
7. Top beam
8. Soil

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Connection between IDROSTOP B25 and IDROSTOP PVC BI

Code: ATE N SQ 015

1. Soil
2. Poor concrete
3. MAPEPROOF
4. First concrete structure
5. IDROSTOP B25
6. MAPEPROOF SWELL
7. IDROSTOP PVC BI

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Structural joint waterproofed with IDROSTOP PVC BE

Code: ATE N SQ 016

1. Soil
2. Poor concrete
3. MAPEPROOF
4. Concrete protective layer with resistance similar to concrete slab
5. IDROSTOP PVC BE
6. First concrete structure
7. Separating element
8. Second concrete structure

100 cm

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Structural joint waterproofed with IDROSTOP PVC BI

Code: ATE N SQ 017

1. Soil  
2. Non-woven fabric ≥ 250 g/m²  
3. MAPEPROOF  
4. MAPEPROOF MASTIC  
5. Shaped bars  
6. First concrete structure  
7. Separating element  
8. Idrostop PVC BI  
9. Second concrete structure

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Construction joint

Code:
ATE N SQ 018

1. Soil
2. Poor concrete
3. MAPEPROOF
4. Concrete protective layer with resistance similar to concrete slab
5. First cast of concrete slab
6. Second cast of concrete slab
7. IDROSTOP B25
8. Steel bars

50 cm

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Small courtyard

NEW CONSTRUCTIONS
BELOW GROUND LEVEL

Code:
ATE N SQ 019

1 Concrete wall
2 Window
3 MAPELASTIC FOUNDATION
4 Wall of the small courtyard
5 Protection layer
6 Bolt
7 Steel bars
8 DROSTOP B25
9 MAPELEX PLUS
10 DRAIN LATERAL
11 Concrete slab
12 MAPEPROOF MASTIC
13 Rain water collector
14 MAPEPROOF
15 Poor concrete
16 Screed

Technical design guide
for WATERPROOFING
Car parks ramp

Code: ATE N SQ 020

1. Concrete slab
2. Steel bars
3. Concrete protection layer with resistance similar to concrete slab
4. MAPEPROOF
5. Poor concrete
6. Soil
7. IDROSTOP PVC BI
8. Ramp
9. Drain
10. MAPEFLEX PU 45 with MAPEFOAM

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Waterproofed intermediate floor - Topdown construction

1. Soil  
2. Poor concrete  
3. PE layer  
4. Intermediate floor

5. Patch of MAPEPROOF  
6. MAPEPROOF MASTIC  
7. Steel bars  
8. Retaining wall  
9. Mortar regularization (MAPEGROUT T80)  
10. MAPEPROOF  
11. MAPEFIX VE SIF

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Wellpoint sealing

Code: ATE N SQ 022

1. MAPEGROUT COLABLE
2. Steel cap
3. MAPEPROOF SWELL
4. MAPEPROOF MASTIC
5. IDROSTOP B25
6. Concrete slab
7. Pipe
8. Metal anchoring
9. Concrete protective layer with resistance similar to concrete slab
10. MAPEPROOF
11. MAPEPROOF SEAL
12. Poor concrete
13. Soil

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Technical design guide for WATERPROOFING

MAPEPROOF on slab and PLASTIMUL on wall

Code: ATE N SQ 023

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
MAPEPROOF - inverted beam

Code: ATE N SQ 024

1. Inverted beam
2. MAPEPROOF
3. Poor concrete
4. Soil
5. IDROSTOP B25
6. Steel bars
7. Concrete wall
8. Connection made with MAPEGROUT or PLANTOP
9. Protection layer

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Waterproofing on cofferdams - by using OSB panels

1. Concrete slab
2. Concrete protective layer with resistance similar to concrete slab
3. MAPEPROOF
4. Poor concrete
5. Soil
6. Concrete wall
7. IDROSTOP B25
8. Cofferdams
9. OSB panel or similar
10. Steel bars

NOTE: Holes between the cofferdams and the OSB panels must be filled with sand before casting.

NEW CONSTRUCTIONS
BELOW GROUND LEVEL
Front edge of a balcony - marble sill

Code: ATE N FQ 001

1. Overhanging floor slab
2. TOPCEM PRONTO (sloping screed)
3. ELASTOCOLOR PAINT
4. MAPELASTIC
5. MAPENET 150 (glass fibre mesh)
6. ADESILEX PG4 (surface dusted with quartz sand)
7. Copper plate with bended edges
8. KERAFLUX MAXI S1 (cementitious adhesive)
9. Balcony flooring grouted with ULTRACOLOR PLUS
10. Bonding slurry (PLANCRETET+TOPCEM+water)
11. Marble sill
12. MAPEISIL LM

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
## Front edge of a balcony - ceramic sill

**Code:** ATE N FQ 002

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<td>ELASTOCOLOR PAINT</td>
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<tr>
<td>4</td>
<td>MAPELASTIC</td>
</tr>
<tr>
<td>5</td>
<td>MAPENET 150 (glass fibre mesh)</td>
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<tr>
<td>6</td>
<td>ADESILEX PG4 (surface dusted with quartz sand)</td>
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<td>7</td>
<td>Copper plate with bended edges</td>
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<td>8</td>
<td>KERAFLUX MAXI S1 (cementitious adhesive)</td>
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<td>9</td>
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<td>10</td>
<td>Bonding slurry (PLANICRETE+TOPCEM+water)</td>
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**New Constructions Above Ground Level**
Front edge of a balcony -
parapet on floor slab

Code: ATE N FQ 003

1. Overhanging floor slab
2. TOPCEM PRONTO
(sloping screed)
3. ELASTOCOLOR PAINT
4. MAPELASTIC
5. MAPENET 150
6. ADESILEX PG4
(surface dusted with quartz sand)
7. Copper plate with
bonded edges
8. KERAFLEX MAXI S1
9. Balcony flooring grouted with
ULTRACOLOR PLUS
10. Bonding slurry
(PLANICRETE+TOPCEM+water)
11. Pre-formed ceramic sill
12. MAPEFLEX PU 45
13. EPORIP
(surface dusted with quartz sand)
14. Parapet
Front edge of a balcony - parapet

1. Overhanging floor slab
2. TOPCEM PRONTO (sloping screed)
3. ELASTOCOLOR PAINT
4. MAPELASTIC
5. MAPENET 150
6. ADESILEX PQ4 (surface dusted with quartz sand)
7. Copper plate with bended edges
8. KERAFLEX MAXI S1
9. Balcony flooring grouted with ULTRACOLOR PLUS
10. Bonding slurry (PLANICRETE+TOPCEM+water)
11. Pre-formed ceramic sill
12. MAPEXIL AC
13. MAPEFIX VE 8F
14. MAPEFLEX PU 45

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
Balcony sill
sill - frame

1. Overhanging floor slab
2. TOPCEM PRONTO
   (sloping screed)
3. Bonding slurry
   (PLANICRETE+TOPCEM+water)
4. MAPELASTIC SMART
5. MAPETEX SEL
6. Pre-formed sill
7. MAPEBIL AC
8. MAPEBIL LM
9. KERAFLEX MAXI SI
10. ULTRACOLOR PLUS
11. Strip of MAPETEX SEL
12. Frame
13. Flooring

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
NEW CONSTRUCTIONS
ABOVE GROUND LEVEL

Floor - wall fillet

Code: ATE N FQ 006

1. Overhanging floor slab
2. TOPCEM PRONTO
3. PE sheet
4. MAPELASTIC
5. MAPENET 150
6. ELASTORAPID
7. Ceramic flooring
8. Brick wall
9. Render
10. MAPEBAND
11. Skirting
12. MAPEBIL AC
13. Compressible material
Floor - bituminous fillet

① Overhanging floor slab
② TOPCEM PRONTO
③ Bituminous sheet
④ PE sheet
⑤ MAPELASTIC
⑥ MAPENET 150
⑦ ELASTORAPID
⑧ Ceramic flooring
⑨ Brick wall
⑩ Render

Code: ATE N FQ 007

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
**Flooring - insulating panel**

**Code:**

ATE N FQ 008

1. Overhanging floor slab
2. TOPCEM PRONTO
3. Bonding slurry (PLANICRETE+TOPCEM+water)
4. MAPELASTIC
5. MAPENET 150
6. ELASTORAPID
7. Balcony flooring grouted with ULTRACOLOR PLUS
8. MAPETHERM AR1/ARIGG
9. Metal profile
10. Skirting
11. MAPEBIL AC
12. MAPEBAND
13. MAPEFOAM
14. Mechanical fixing

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
Sealing structural joint

- MAPEBAND TPE

Reinforced concrete substrate

TOPCEM PRONTO

Bonding slurry
(PLANICRETE+TOPCEM+water)

MAPELASTIC

MAPENET 150

ADESILEX PG4  
(surface dusted with quartz sand)

MAPEFOAM

MAPERFLEX PU45

KERAFLUX MAXI S1

Balcony flooring grouted with 
ULTRACOLOR PLUS

MAPEBAND TPE

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
Sealing a check joint
MAPEBAND

Code:
ATE N FQ 010

1. Reinforced concrete substrate
2. Bonding slurry
   (PLANICRETE+TOPCEM+water)
3. TOPCEM PRONTO
4. MAPELASTIC
5. MAPENET 150
6. MAPEBAND
7. MAPEFOAM
8. MAPESIL AC
9. KERAFLEX MAXI SI/ELASTORAPID
10. Balcony flooring grouted with
    ULTRACOLOR PLUS

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
Structural joint flooring - wall

Code: ATE N FQ 011

1. Reinforced concrete substrate
2. TOPCEM PRONTO
3. ADEBILEX PG4 + quartz
4. MAPEBAND TPE
5. MAPELASTIC
6. MAPENET 150
7. KERAFLEX MAXI 81 or ELASTORAPID
8. Flooring
9. MAPEFOAM
10. MAPEFLEX PU45
11. Metal plate
12. MAPEBIL AC
13. Bonding slurry (PLANICRETE+TOPCEM+water)

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
Drain Vertical

Code: ATE N FQ 013

1. Reinforced concrete substrate
2. Thermal insulation
3. TOPCEM PRONTO
4. MAPELASTIC SMART
5. MAPETEX SEL
6. KERAFLUX MAXI SV/ELASTORAPID
7. Flooring
8. DRAIN VERTICAL
9. MAPEISIL AC
10. ULTRACOLOR PLUS
11. PE sheet

NEW CONSTRUCTIONS
ABOVE GROUND LEVEL
## Drain Front

**Code:** ATE N FQ 014

1. Reinforced concrete substrate
2. Thermal insulation
3. TPOCEM PRONTO
4. MAPELASTIC
5. MAPENET 150
6. KERAFLEX MAXI SI ELASTORAPID
7. Flooring
8. DRAIN FRONT
9. ADESILEX PG4 (surface dusted with quartz sand)
10. Render
11. PE sheet

**NEW CONSTRUCTIONS**

**ABOVE GROUND LEVEL**
Front edge of a balcony - thermal insulation

Code: ATE N FQ 015

1. Reinforced concrete substrate
2. TOPCEM PRONTO (sloping screed)
3. Thermal insulation
4. MAPELASTIC
5. MAPENET 150
6. ADESILEX PG4 + quarz
7. Copper plate
8. KERAFLEX MAXI S1
9. Flooring grouted with ULTRACOLOR PLUS
10. Vapor barrier
11. Ceramic tile
12. MAPESIL AC
13. MAFERIX VE 8F
14. MAFERLEX PU 45
15. MAPETHERM SYSTEM
16. PE sheet

NEW CONSTRUCTIONS

ABOVE GROUND LEVEL
### Internal lining

**MAPEPROOF and MAP. FOUNDATION**

**Code:** ATE R SQ 001

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<tr>
<th>No.</th>
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<td>MAPEPROOF MASTIC</td>
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<td>Connectors</td>
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<td>5</td>
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<td>7</td>
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<td>Regulating layer of lean concrete</td>
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### REPAIRING

**BELOW GROUND LEVEL**
Internal lining on a foundation slab and wall - MAPEPROOF

Code: ATE R SQ 002

1. Existing reinforced concrete structure
2. MAPEPROOF
3. MAPEPROOF MASTIC
4. Connectors
5. IDROSTOP SOFT
6. Regulating layer of lean concrete
7. Ground
8. New reinforced concrete structure designed to withstand hydraulic pressure
9. MAPEPROOF SWELL
10. MAPEFIX VE SF

REPAIRING
BELOW GROUND LEVEL
Sealing penetrations without water in pressure

Code: ATE R SQ 003

1. Ground
2. Reinforced slab
3. Reinforced wall
4. MAPEPROOF SWELL
5. MAPEGROUT 430/BM

REPAIRING

BELOW GROUND LEVEL
**Structural joint - wall and slab**

**Code:**
ATE R SQ 004

**WALL-SLAB JOINT**

1. Reinforced slab
2. MAPEFIX VE 8F
3. EPORIP
4. ADESILEX PG 4 + quartz sand
5. MAPEBAND TPE
6. Connectors

- Reinforced wall
- Metal sheet
- MAPEFOAM
- MAPEGROUT COLABILE + MAPECURE SRA
- MAPEFLEX PU45

**REPAIRING**

**BELOW GROUND LEVEL**
### Internal lining

**MAPEPROOF and MAP. FOUNDATION**

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**REPAIRING**

**BELOW GROUND LEVEL**
Front edge of a balcony with sill - waterproofing on existing flooring

Code: ATE R FQ 001

1. Overhanging floor slab
2. Existing screed
3. Existing render and coating
4. Existing sill
5. Existing flooring
6. Existing adhesive
7. ADESILEX P4
8. MAPELASTIC SMART
9. MAPETEX SEL
10. KERAFLEX MAXI SI (cementitious adhesive)
11. Balcony flooring grouted with ULTRACOLOR PLUS
12. MAFESIL AC
13. Ceramic sill

REPAIRING

ABOVE GROUND LEVEL
Technical design guide
for WATERPROOFING

Junction internal sill - flooring
waterproofing on existing flooring

Code:
ATE R FQ 002

1. Reinforced concrete
2. Existing screed
3. Existing adhesive
4. Existing flooring
5. MAPELASTIC SMART
6. Strip of MAPETEX SEL
7. MAPETEX SEL
8. KERAFLEX MAXI S1
9. Flooring grouted with ULTRACOLOR PLUS
10. MAPEBIL LM

REPAIRING
ABOVE GROUND LEVEL
Front edge of a balcony - parapet
waterproofing on existing flooring

Code:
ATE R FQ 003

1. Overhanging floor slab
2. Existing concrete
3. Parapet
4. Existing render and coating
5. Existing adhesive
6. Existing flooring
7. ADESILEX P4
8. EPORIP + surface dusted with quartz sand
9. MAPELASTIC
10. MAPENET 150
11. KERAFLEX MAXI S1
12. Flooring grouted with ULTRACOLOR PLUS
13. Pre-formed ceramic sill
14. MAPEFLEX PU 45

REPAIRING
ABOVE GROUND LEVEL
Technical design guide
for WATERPROOFING

**Junction flooring - wall**

*waterproofing on existing flooring*

**Code:**
ATE R FQ 004

1. Overhanging floor slab
2. Existing screed
3. Existing adhesive
4. Existing flooring
5. ADESILEX P4
6. MAPELASTIC AQUADEFENSE
7. KERAFLEX MAXI S1
8. Wall bricks
9. Coating
10. MAPEBAND
11. Skirting
12. MAPESIL AC
13. New flooring

**REPAIRING**

**ABOVE GROUND LEVEL**
Check joint
waterproofing on existing flooring

Code:
ATE R FQ 005

1. Reinforced concrete substrate
2. Existing screed
3. Existing adhesive
4. Existing flooring
5. MAPELASTIC SMART
6. MAPEBAND
7. MAPETEX SEL
8. KERAFLEX MAXI SI/ELASTORAPID
9. MAPEFOAM
10. MAPESIL AC
11. Flooring grouted with ULTRACOLOR PLUS

REPAIRING
ABOVE GROUND LEVEL
Technical design guide for WATERPROOFING

Drain Vertical
waterproofing on existing flooring

Code: ATE R FQ 006

1. Reinforced concrete substrate
2. Existing bituminous layer
3. Existing vertical drainage
4. PE sheet
5. Existing screed
6. Existing adhesive
7. Existing flooring
8. ADESILEX P4
9. MAPELASTIC
10. DRAIN VERTICAL
11. MAPENET 150
12. KERAFLEX MAXI SI
13. Flooring grouted with ULTRACOLOR PLUS
14. MAPEBIL AC

REPAIRING
ABOVE GROUND LEVEL
### BATHROOMS, DAMP ENVIRONMENTS, SWIMMING POOLS, BALCONIES and TERRACES

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<th>Joints</th>
<th>Cross-members</th>
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* Exposed waterproofing layers
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<th>Reinforced concrete walls with negative lift</th>
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- After carrying out the render with Planitop HDM Maxi.
Technical design guide for WATERPROOFING

HEAD OFFICE
MAPEI S.p.A.
Via Cafiero, 22 - 20158 Milan
Tel. +39-02-37673.1
Fax +39-02-37673.214
Internet: www.mapei.com
E-mail: mapei@mapei.it