WATERPROOFING DESIGN

Solutions for waterproofing old and new terraces

VOLTECO
WATERPROOF TECHNOLOGY

Contents

Waterproofing **Design**

AQUASCUD®

The importance of waterproofing terraces

INSURANCE - MAINTENANCE

Accurate maintenance plays a fundamental role in preventing damage from infiltration

80% of design engineers consider the possibility of insuring waterproofing on terraces interesting

DETERIORATION

More than **11%** of the balconies have signs of rust and exposed irons

At least **15%** of homes in have traces of external moisture

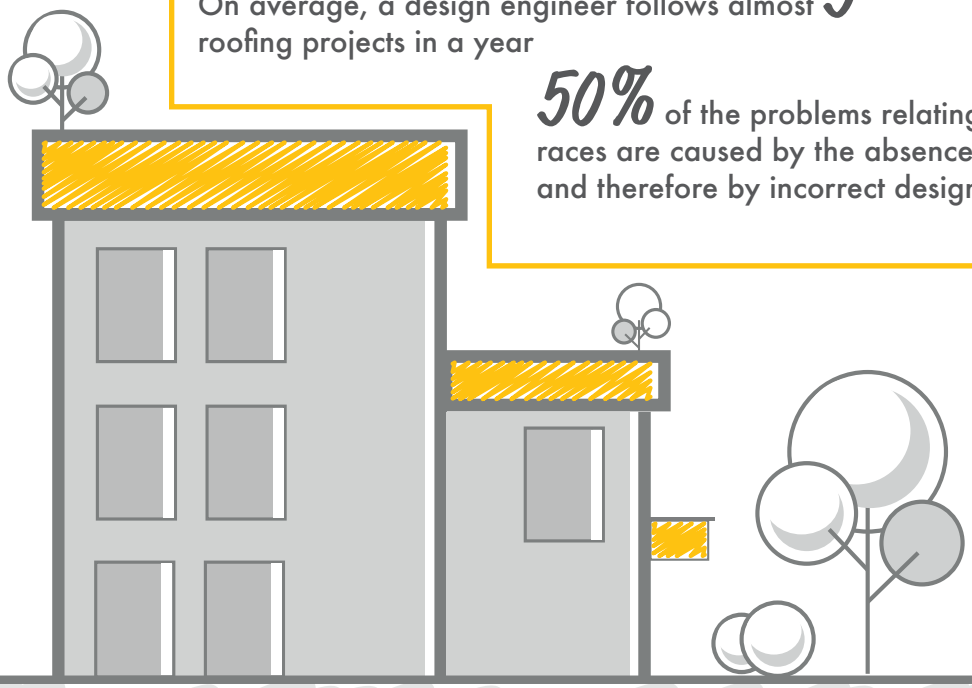
More than **12%** of homes in Italy have cornices and parapets with the cornice at risk of collapsing

MARKET

The presence of a habitable terrace can increase the price of a property up to **22%**

82% of flat roofs and terraces are in detached or semi-detached houses

41% of construction problems are related to terraces



DESIGN

On average, a design engineer follows almost 5 roofing projects in a year

50% of the problems relating to terraces are caused by the absence of joints and therefore by incorrect design

In Italy over 73% of homes were built before 1981

of which 24% is in poor conditions

of which 3% is in very bad conditions

The perceived value of the importance of a habitable terrace has increased by 80% in the last 10 years

Ref. Volteco Research Centre
data referred to italian market

Types

Closed balcony

These balconies **do not protrude** and may even be retracted with respect to the profile of the building. They are generally **closed on two sides**.

Open balcony

Also called **projecting balconies**, they are the most common type of balcony. Their peculiarity is to protrude with respect to the facade of the building and are therefore usually **open on three sides**.

Walk-out roof terrace

It is a special type of roof terrace that only **covers a part of the building**. It has a dual function: roofing and outdoor projection of the flat from which one accesses.

Roof terrace

It is a terrace that covers the entire building.It essentially has a **roofing function** and can be owned jointly or exclusively.

The **failure of terrace and flat roof waterproofing** is one of the most widespread problems that often causes **aesthetic and structural damages**. Troublesome and harmful water infiltrations leaking from the terrace to the rooms below cause water and moisture stagnation, forming mould that is harmful, contributing to the deterioration of the structure. Keeping rainwater away is a crucial point to prevent its infiltration during its outflow towards the ground. It is therefore necessary to prepare surfaces with appropriate slopes in order **to ensure the outflow of water** without seepage in the rooms below.

DIAGNOSIS OF THE MAIN ASPECTS

Quality and consistency of the screeds

Screeds with poor mechanical characteristics, or which simply make 'dust', do not constitute a suitable adhesion surface for waterproofing systems. This phenomenon does not ensure correct and complete adhesion, an essential requirement for the effectiveness of the waterproofing.

The slope of the screed

Achieving the correct slope of the screeds is essential to convey the water towards the collection points and subsequently into the drains, so as to avoid the stagnation of water puddles on flat roofs, waterproofing the structure and preventing the problems caused by the freeze/thaw cycle.

Capillary risins dampness on perimeter walls

The presence of capillary moisture tends to disrupt the exposed surfaces, making them crumbly and flaky, with progressive detachment of the covering and finishing materials both on the wall and on the floor..

Expansion joints

The absence of expansion joints on the screeds causes tensions due to expansion/contraction phenomena induced by the temperature variations to which flat roofs are subject. All the stresses put together create spontaneous cracks in the tiles and screed with relative infiltrations and in the most critical situations even buckled flooring.

Connection with vertical surfaces

The possibility to easily seal all joints, including those made to control thermal expansions/contractions and those specifically designed for structural reasons, is the foundation of a correct system for waterproofing flat roofs in general.

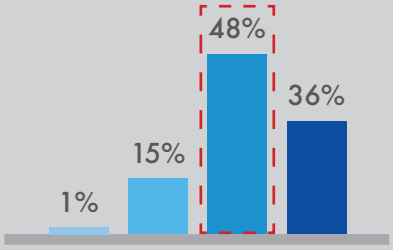
Details and crossing penetrations

It is crucial to also take special care of the insertion of elements such as railings, drains, vents: basically all those extremely important details that ensure good project results.

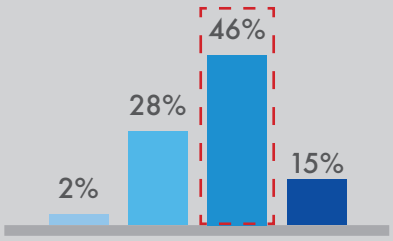
Requirements & Expectations

WHAT ARE THE MAIN **REQUIREMENTS** THAT THE **CUSTOMER** DEMANDS FROM THE DESIGNER DURING THE CONSTRUCTION AND REFURBISHMENT OF TERRACES?

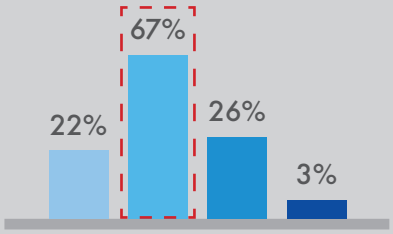
- NEVER
- NOT MUCH
- QUITE A LOT
- OFTEN



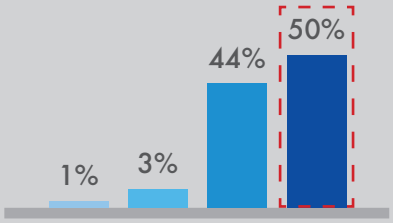
Quality of the materials



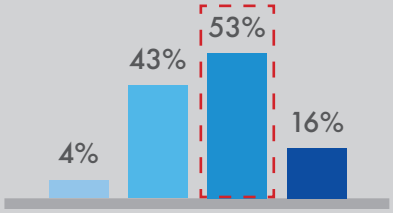
Design and aesthetics



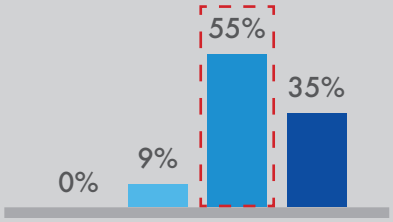
Speed of the project



Handling of paperwork/warranties



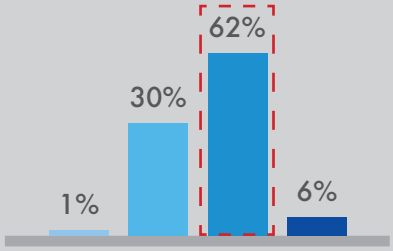
Low impact of the demolition



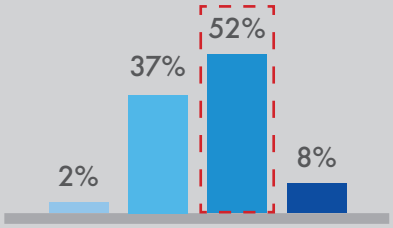
Optimisation of logistics and timing

WHICH ARE THE MAIN **PROBLEMS** ENCOUNTERED DURING TERRACE RENOVATION?

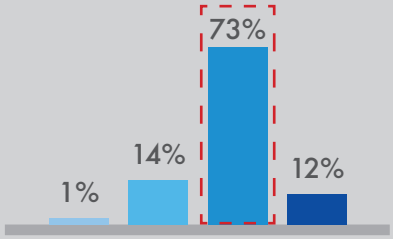
- NEVER
- NOT MUCH
- QUITE A LOT
- OFTEN



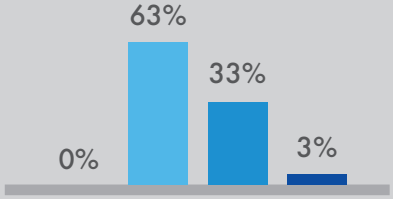
Screed execution errors



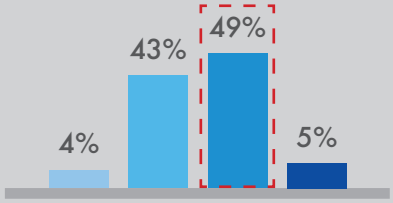
No joints



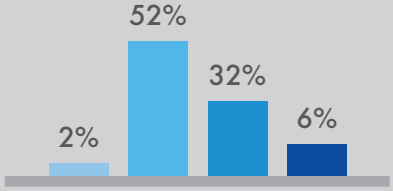
Incorrect waterproofing



Incorrect slopes



Poor materials



Problems in finish

Ref. Volteco Research Centre data referred to italian market

The enemies of the terrace

Rain

Cold

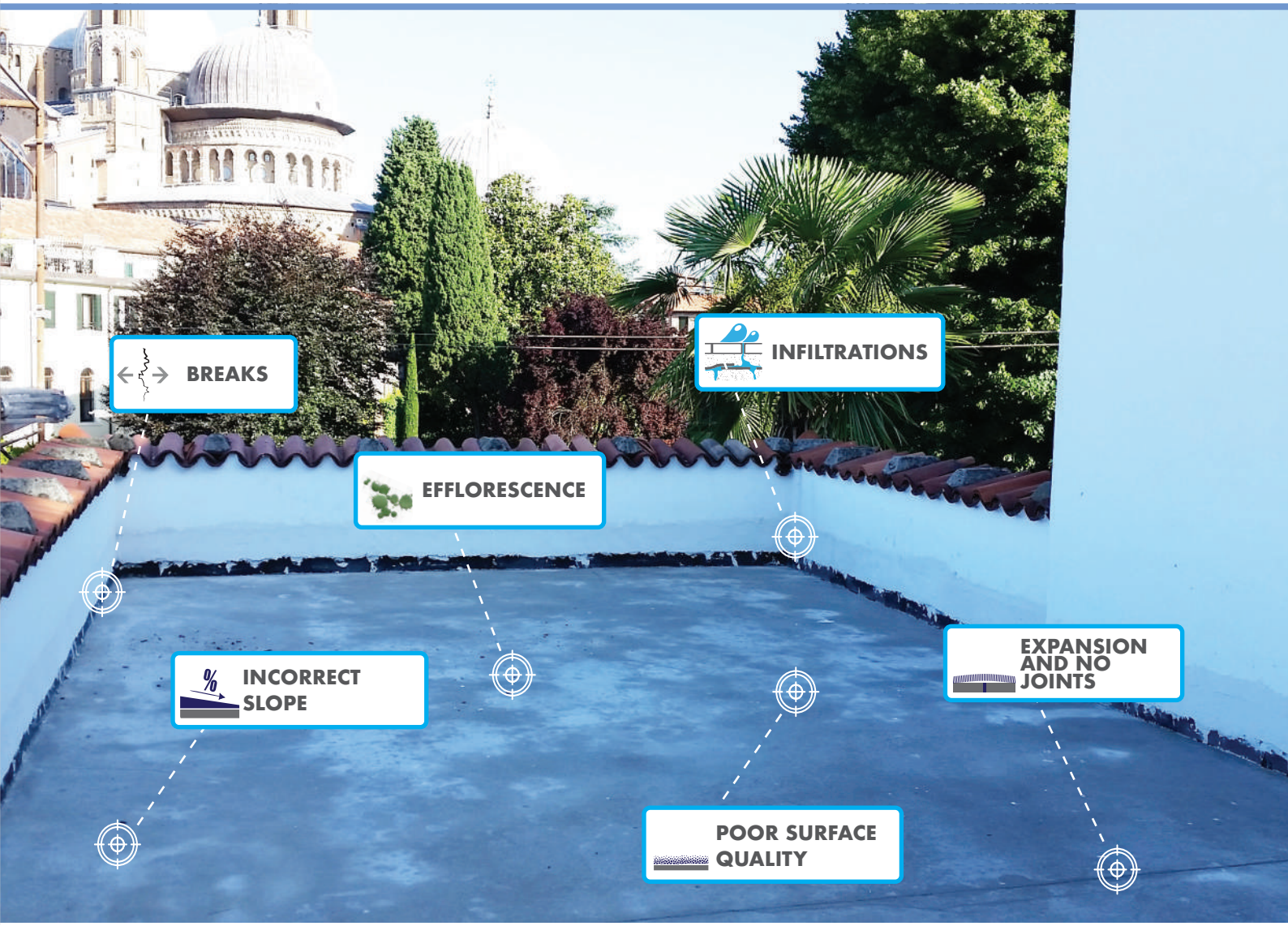
Thermal Shock

Heat resistance

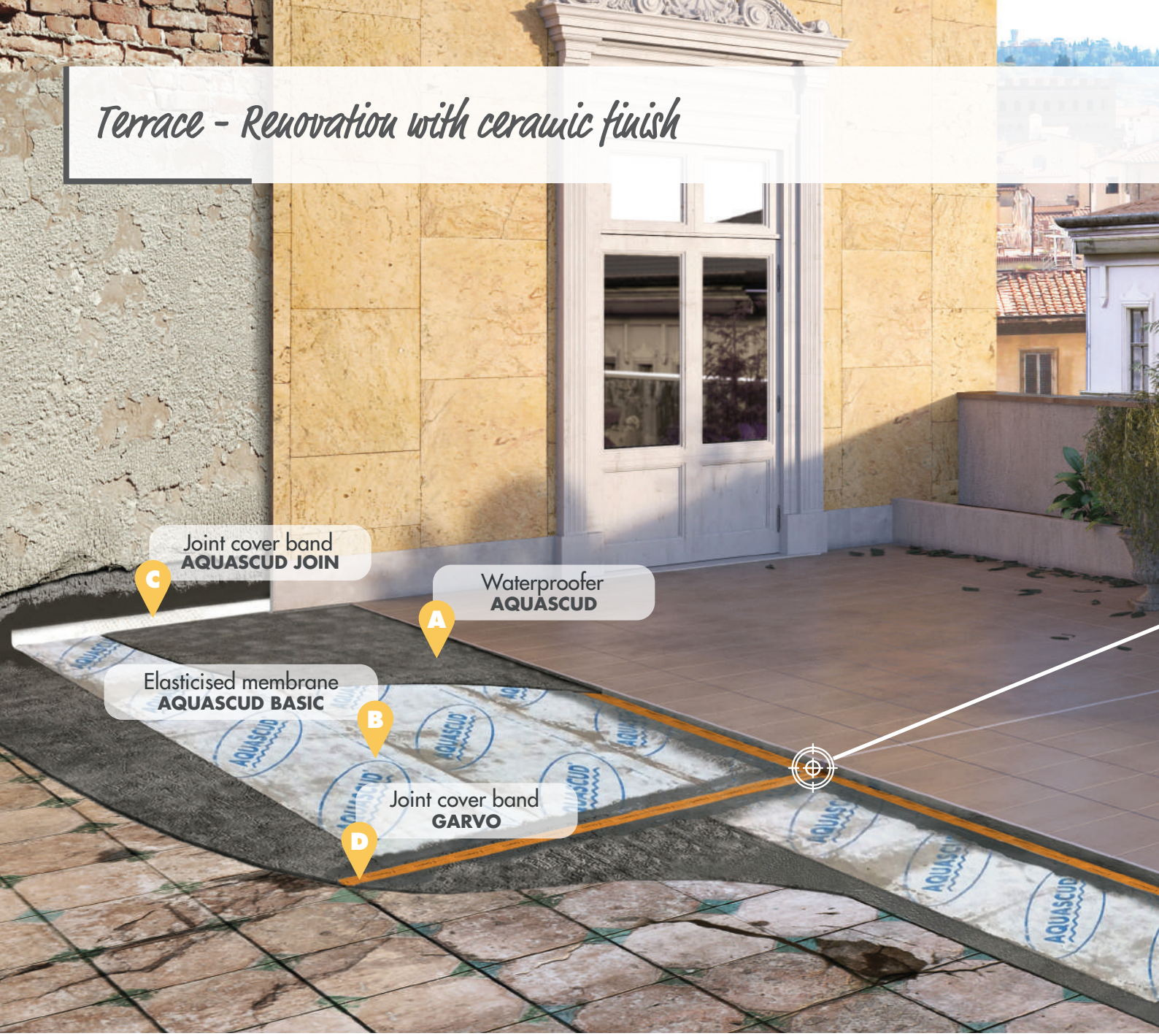
Cracks

Repairs

Ageing



Terrace - Renovation with ceramic finish



Preventive Technical Analysis

Preparation

Inspection of any previous waterproofing / existing surface

Accurate assessment of drains and verification of slopes

Inspection of cracks and presence of joints

1 2 3 4 5

Verification of thickness and weight

Verification of level on the screed of water absorption

Restoration of missing and/or non-adherent parts

BENEFITS

20 years VOLTECO durability check up Aquascud

- Applicable on **existing flooring**
- **High deformability** due to its performance characteristics
- **High crack bridging ability** Crack Bridging Ability: 2 mm
- Repairable solution, due to its **total adhesion to the surface**
- **Reduction of curing and installation times** (complete cycle in 24h): resistant to moisture and low temperatures
- **Complete system** to waterproof every detail and crossing elements as best as possible

Complete cycle in 24 h

AQUASCUD Waterproofing

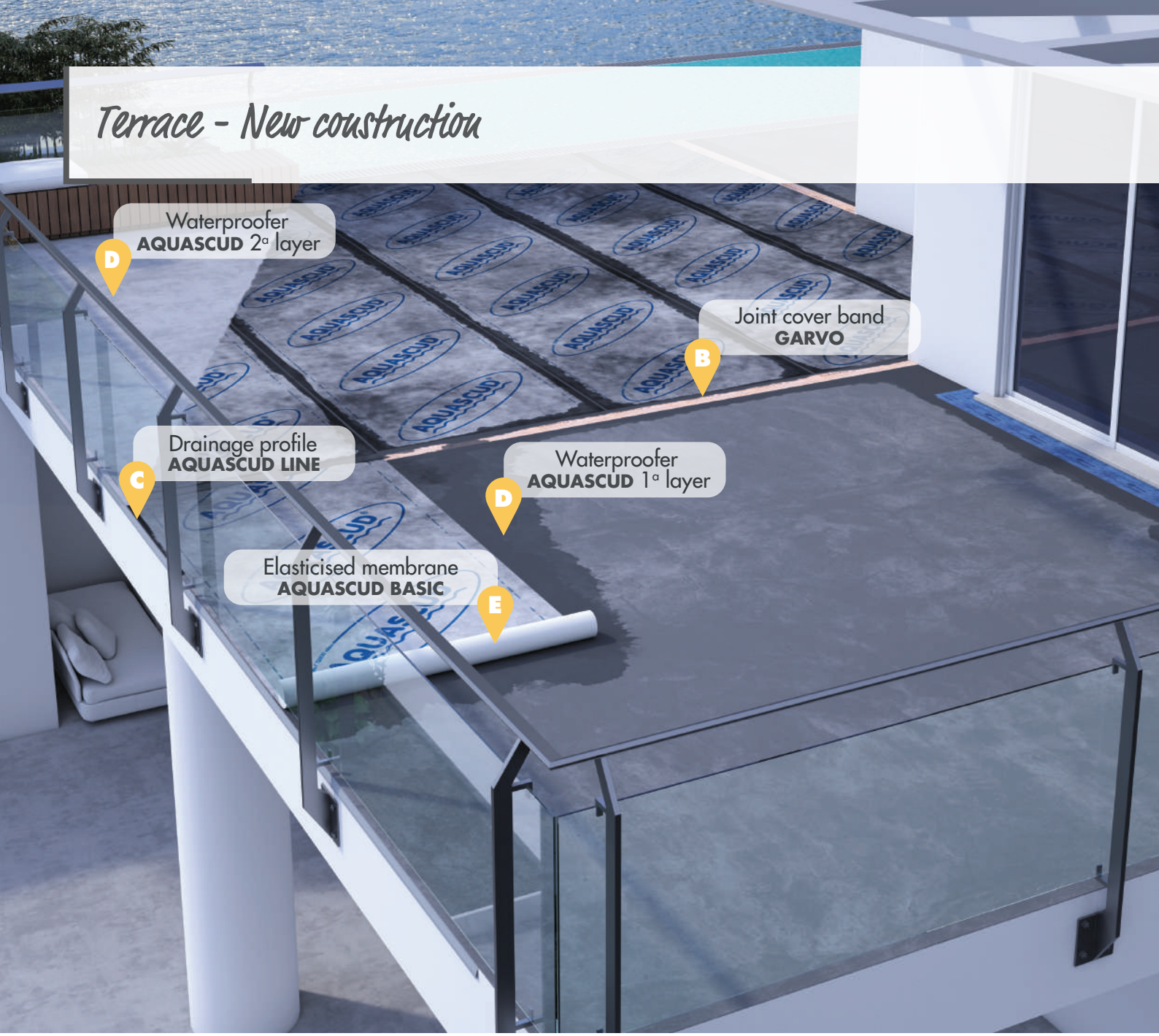
Curing **16 h**

End of work

2 h between first and second coat

Installation of tiling

Terrace - New construction



Preventive Technical Analysis

Preparation

Stratigraphy design

Inspection of drains and slopes

1

2

Inspection of expansion joints

20 years VOLTECO durability check up Aquascud

BENEFITS

- **High deformability**
due to its performance characteristics
- **High crack bridging ability**
Crack Bridging Ability: 2 mm
- Repairable solution, due to its **total adhesion to the surface**
- **Reduction of curing and installation times**
(complete cycle in 24h): resistant to moisture and low temperatures
- **Complete system**
to waterproof every detail and crossing elements as best as possible
- **Pratical riser protection with correct water outflow**

Complete cycle in 24 h

AQUASCUD Waterproofing — 2 h between first and second coat — Curing **16 h** — End of work

Installation of tiling

Balconies - Renovation

Preventive Technical Analysis

Preparation

Inspection of any previous waterproofing / existing surface

Accurate assessment of drains and verification of slopes

Inspection of cracks and presence of joints

1

2

3

4

5

Verification of thickness and weight

Verification of level of screed water absorption

Restoration of missing and/or non-adherent parts
FLEXOMIX 30

PLASTIVO®

Volteco solutions

BENEFITS

- Applicable on **existing flooring**
- **High deformability** due to its performance characteristics
- **High crack bridging ability** Crack Bridging Ability: > 1,5 mm
- Repairable solution, due to its **total adhesion to the surface**
- **Reduction of curing and installation times** (complete cycle in 24h): resistant to moisture and low temperatures
- **Complete system** to waterproof every detail and crossing elements as best as possible
- **Pratical riser protection with correct water outflow**

Complete cycle in 24 h

PLASTIVO®

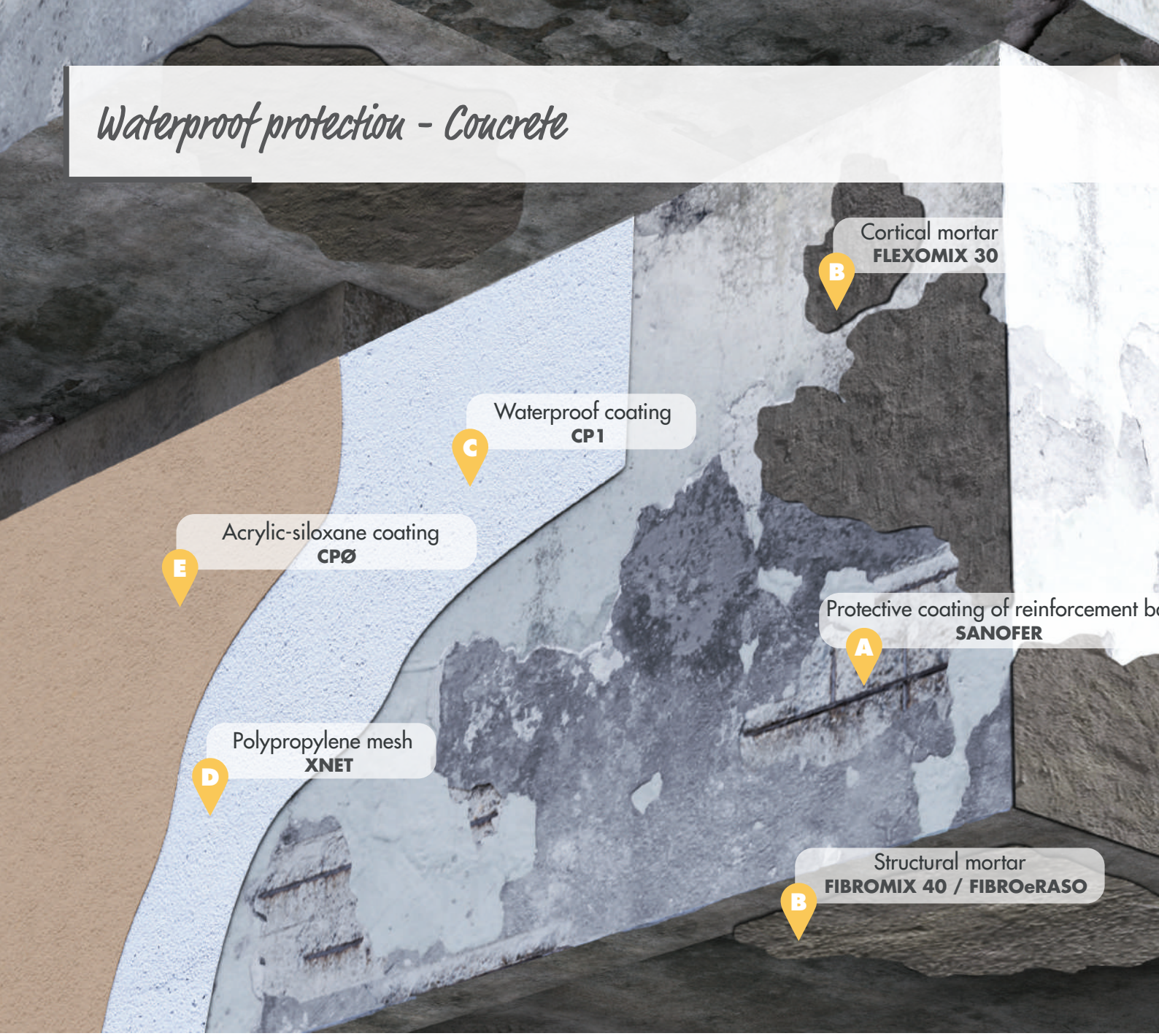
Waterproofing — Curing **16 h**

2 h between first and second coat

End of work

Installation of tiling

Waterproof protection - Concrete



Preventive Technical Analysis

Restoration

Diagnosis and preparation (inspection and cleaning)

1

Restoration (cortical and/or structural)

SANOFER
Protective coating of reinforcement bars

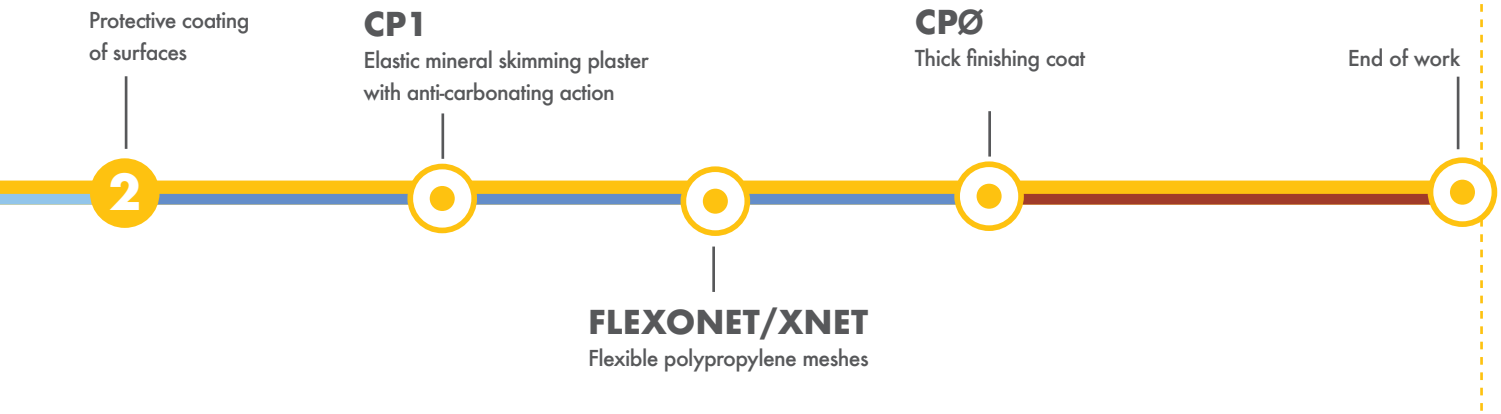
FIBROMIX 40/FIBROeRASO
Fibre-reinforced thixotropic mortar with medium elastic modulus

FLEXOMIX 30
Fibre-reinforced thixotropic mortar with low modulus of elasticity

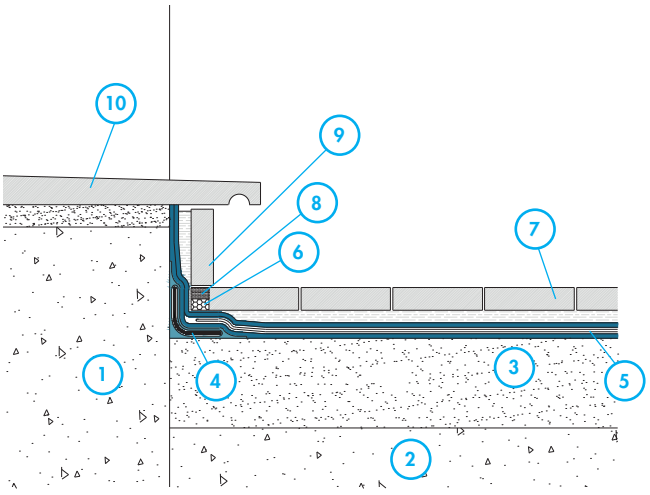
BENEFITS

- Water and moisture **impermeability**
- **Breathability** from the inside to the outside, preventing the formation of mould and allowing the creation of a healthy internal microclimate
- **Elasticity**, to cover cracks and fissures
- **Anticarbonation** action
- Technological solution that combines and makes these four fundamental performances collaborate for the **durability of the intervention**

Coating

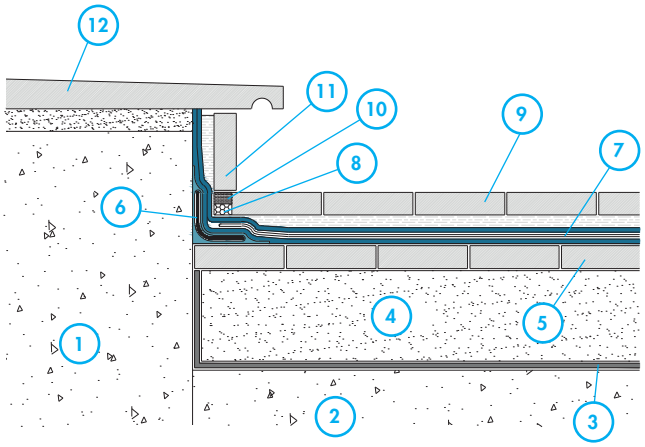


Application details - technical drawings



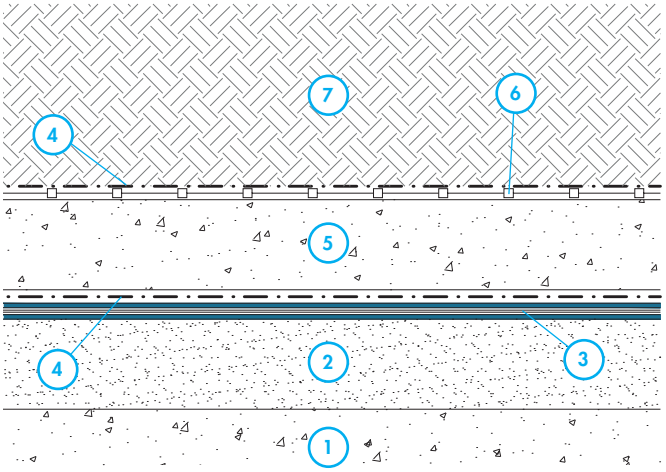
WALKABLE ROOF - NEW

1. RC vertical structure
2. RC slab
3. Sloped screed
4. Aquascud Join or Join Bt
5. Aquascud System
6. Deformable separating element suitable to absorb thermal expansions
7. Ceramic floor tiles laid with C2-type adhesive (preferably with an S1 and S2 deformation class)
8. Low elastic modulus sealant solvent-free
9. Skirting board
10. Marble threshold



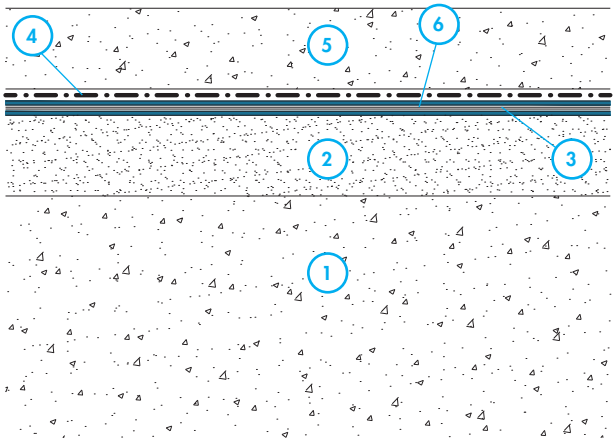
WALKABLE ROOF - RENOVATION

1. RC vertical structure
2. RC slab
3. Existing bituminous sheathing
4. Existing sloping screed
5. Existing well-bonded flooring
6. Aquascud Join or Join Bt
7. Aquascud System
8. Deformable separating element suitable to absorb thermal expansions
9. Ceramic floor tiles laid with C2-type adhesive (preferably with an S1 and S2 deformation class)
10. Low elastic modulus sealant solvent-free
11. Skirting board
12. Marble threshold



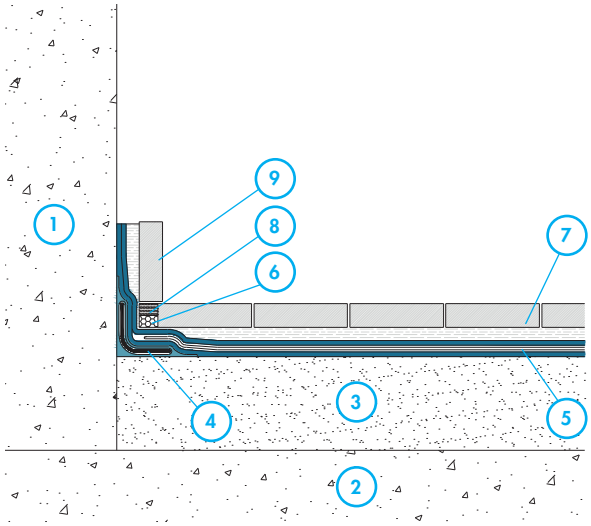
ROOF GARDEN

1. RC slab
2. Sloped screed
3. Aquascud System
4. Element for protection or separation
5. Protection screed
6. Drainage system
7. Soil



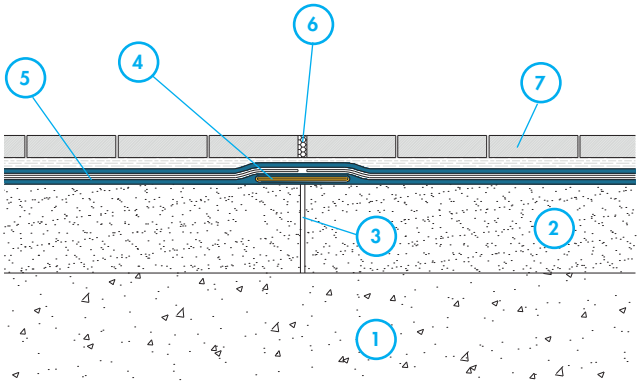
DRIVEWAY COVER - NEW

1. RC slab
2. Sloped screed
3. Aquascud System
4. Element for protection or separation
5. RC protection screed



SEALING OF CORNERS - RENOVATION

1. RC vertical structure
2. RC slab
3. Sloped screed
4. Aquascud Join or Join Bt
5. Aquascud System
6. Deformable separating element suitable to absorb thermal expansions
7. Ceramic floor tiles laid with C2-type adhesive (preferably with an S1 and S2 deformation class)
8. Sigillatura a basso modulo elastico privo di solventi
9. Skirting board



EXPANSION JOINT ON SCREED

1. RC slab
2. Sloped screed
3. Expansion joint
4. Garvo
5. Aquascud System
6. Deformable sealing joint
7. Ceramic floor tiles laid with C2-type adhesive (preferably with an S1 and S2 deformation class)

Certifications & Warranties

CERTIFICATIONS

The reference standard is **Regulation EN 14891:2012.**

LIQUID-APPLIED WATER IMPERMEABLE PRODUCTS FOR USE BENEATH CERAMIC TILING BONDED WITH ADHESIVES

This standard establishes the criteria, test methods and requirements for conformity assessment, classification and designation of liquid-applied waterproofing products to be used under ceramic tiling bonded with adhesives

The products are divided into three types:

- CM liquid-applied water impermeable cementitious products
- DM liquid-applied water impermeable dispersion products
- RM liquid-applied water impermeable reactive resin-based products

To be compliant, the products must also have minimum adhesion strengths > 0.5 N/mm² in all the required tests, they must have a crack-bridging ability > 0.75 mm and must be impermeable to a pressure of 150 KPa.

The following optional features are envisaged for each of the three types:

- O1 Products that have a crack-bridging ability > 0.75 mm at low (-5°C)
- O2 Products that have a crack-bridging ability > 0.75 mm at low temperature (-20°C)
- P Products that have minimum adhesion strengths > 0.5 N/mm² even after the contact test with water containing chlorine

WARRANTIES

What does Durability mean for Volteco?

It means certifying the quality of its applied systems over the years or subjecting one's work to constant control through real, on-site, past and present achievements. Thanks to this check-up, our technicians evaluate different levels of in-depth analysis: on the one hand the history of the construction, the pre-intervention analysis, the state of affairs, the environmental and geophysical situation. On the other hand, the cataloging of the building's problems in relation to waterproofing and the presence of water, with the description of Volteco's solutions.

Targets

Quality

Durability

User guarantee

VOLTECO: *the ideal partner for waterproofing*

More than forty-five years ago, **Volteco** was born around an idea. A challenge, then as now, **to protect building structures from water**. Even now we still do just that, **it is our DNA**. Because the best guarantee is technical competence. We are specialists in our work, we are the **Waterproofing Specialists**!

To achieve these goals, we work with **passion**, cultivating our company values. **"Teamwork, continuous training, taking responsibility, clear communication, timeliness, integration, empathy, positivity"**. With the same determination, we work 'in the field' for companies, through a network of Distributors and Applicators, in collaboration with Designers. We restore centrality to value in our operations!

Volteco's products are designed to respond to specific needs depending on the area of intervention. Above or below ground level, renovation or new construction, Volteco offers a **specific solution** for each type of problem, which integrates with others, creating a performance mix.

Volteco services
at your disposal

> Services for the designer

BIM
Building Information Modeling
CUSTOMIZE YOUR PROJECT

> Support for professionals and installers

training VOLTECO

> Qualified installers

TEAM H2OUT
NETWORK SPECIALISTICO BY VOLTECO

> More than 2.200 references: www.volteco.com

VOLTECO durability check up

CB-CC-CD-CF-ED-FA-FB-FF-EM-ER-ET-ZR-ZZ | D | 01 | 00 | - | 03/2024 | EN

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WATERPROOF TECHNOLOGY

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COMPANY CERTIFIED MANAGEMENT SYSTEM QUALITY - ISO 9001 - ENVIRONMENT ISO 14001 - SAFETY ISO 45001