Waterproofing Problems of Buildings

Step by step presentation of repairing and structural solutions

isomat building quality
Waterproofing Problems in Buildings

Proper waterproofing in buildings, including problems caused by insufficient waterproofing or its bad maintenance, concern both professionals and individuals.

In ISOMAT, we have developed integrated solutions for any waterproofing problem, as a result of our high expertise and our long experience. In this brochure, you can find solutions to the most common waterproofing difficulties. With a step-by-step (picture + text) presentation of the activities required for each case, we believe that this brochure can be a very helpful guide for anyone interested.

However, both the factors causing these problems and the dominant local conditions in each case, vary. For this reason, it is impossible to describe all the particular problems in one brochure. Therefore, if you need more information, you can consult the Technical Support Department of ISOMAT. Our highly specialized and experienced engineers are ready to provide you with the proper technical solution to any difficulty arising in your construction works.
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Moisture problems in the top floor apartments are a common phenomenon. Such problems are caused either because the terraces have no waterproofing layer or because the waterproofing layer is inadequate (wrong products, poor application, lack of maintenance). Following are different ways of solving this problem, according to its extent, the current condition of the terrace and its future usage.

**LOCAL SEALING OF CRACKS, JOINTS AND JUNCTIONS OF DIFFERENT MATERIALS**

In many cases, topical waterproofing of cracks or joints between different materials is enough to solve the moisture problems of a terrace. This is the most economical solution of waterproofing. In this case, it is recommended to use the brushable, elastomeric waterproofing membranes ISOFLEX, ISOFLEX-T25 or the polyurethane ISOFLEX-PU 500. ISOFLEX-T25 and ISOFLEX-PU 500 are used in case durability at extreme temperatures is required (from -25°C to +120°C and from -40°C to +90°C respectively).

### 1. Problem: Waterproofing of terraces

**PRODUCTS**

- **ISOFLEX** Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISOFLEX-PU 500** Brushable, polyurethane waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISOFLEX-T25** Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISO-PRIMER** Primer of brushable elastomeric waterproofing membranes. Consumption: 0.2-0.3 kg/m²
- **PRIMER-PU 100** Primer of ISOFLEX-PU 500. Consumption: 0.2-0.3 kg/m²
- Polyester fabric or fiberglass mesh (10 cm wide), for reinforcing waterproofing layers

1. **Problem**: Waterproofing of terraces
   - **Products**
     - ISOFLEX
     - ISOFLEX-PU 500
     - ISOFLEX-T25
     - ISO-PRIMER
     - PRIMER-PU 100
     - Polyester fabric or fiberglass mesh
   - **Consumption**
     - ISOFLEX-PU 500: 0.2-0.3 kg/m²
     - ISOFLEX-T25: 0.2-0.3 kg/m²
     - Primers: 1.0-1.5 kg/m²
   - **Description**
     - ISOFLEX is applied along the intersection to a width of approximately 12 cm. While the first layer of ISOFLEX is still fresh, a glass mesh or polyester fabric strip is positioned on both sides of intersection.
     - Two further layers of ISOFLEX are applied, each one only after the prior has completely dried.

2. **Problem**: Intersection of the terrace with the vertical structures (parapets, stairwells etc.) should be clean and dry. The surface is primed with ISO-PRIMER.
   - **Description**
     - The surface should be dry. Then, the crack is primed along its length and to a width of approximately 12 cm, with the special primer ISO-PRIMER.
     - After the primer has dried, ISOFLEX is locally applied with a brush.
     - The strips of glass mesh or polyester fabric are positioned while ISOFLEX is still fresh.
     - After the first layer of ISOFLEX has dried, two further layers are applied along the cracks.

3. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

4. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

5. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

6. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

7. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

8. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.

9. **Problem**: Joints between the terrace and the metallic elements (rain pipes, gutters etc.) should be cleaned from dust and rust.
   - **Description**
     - The dry surface is primed with ISO-PRIMER all around the joint.
     - After the primer has dried, ISOFLEX is applied all around the joint, including the vertical element.
     - While the first layer of ISOFLEX is still fresh, a fiberglass mesh or polyester fabric strip is positioned around the element.
     - Afterwards, two further layers of ISOFLEX are applied on the joint.
WATERPROOFING OF TERRACES WITH A SLOPE (WITHOUT STANDING WATER)

It is typical of terraces with mosaic or cement mortar grade to have moisture problems. Presented below are two different solutions:
1) Waterproofing of terraces with the brushable sealants ISOFLEX, ISOFLEX-T25 or ISOFLEX-PU 500 and
2) Waterproofing of terraces with bituminous membranes, covered with mineral chipping or aluminium leaf.

1st Solution: Waterproofing with the brushable sealants ISOFLEX, ISOFLEX-T25 or ISOFLEX-PU 500.

For the preparation of the substrate, the polymer-modified cement mortars DUROCRET or DUROCRET-FAST can be used. ISOFLEX should be applied on a clean and dry substrate.

Firstly, the terrace is primed with ISO-PRIMER.

After the primer has dried, a layer of ISOFLEX is applied along the intersection of the terrace with vertical structures (parapets etc.), as well as along any cracks, tiles and joints between the terrace and any metallic element (rain pipes, gutters etc). While it’s still fresh, this layer is reinforced with a fiberglass mesh or polyester fabric strip (10 cm wide).

A second coat of ISOFLEX should be applied crosswise once the first one has dried and can be walked on.

The final result is a uniform, elastic and waterproofing membrane without joints or seams. The main advantage of ISOFLEX is its resistance to ageing.

RECOMMENDATION:
In cases where the waterproofing layer should also have high resistance to extreme temperatures, instead of ISOFLEX, it is recommended to use ISOFLEX-T25 (-25°C to +120°C) or ISOFLEX-PU 500 (-40°C to +90°C).

PRODUCTS
- **ISOFLEX** Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISOFLEX-PU 500** Brushable, polyurethane waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISOFLEX-T25** Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- **ISO-PRIMER** Primer of brushable elastomeric waterproofing membranes. Consumption: 0.2-0.3 kg/m²
- **PRIMER-PU 100** Primer of ISOFLEX-PU 500. Consumption: 0.2-0.3 kg/m²
- Polyester fabric or fiberglass mesh (10 cm wide), for reinforcing waterproofing layers
- **DUROCRET** Polymer-modified, repairing cement mortar. Consumption: approx. 15 kg/m²/cm layer thickness
- **DUROCRET-FAST** Fast-setting, repairing cement mortar. Consumption: approx. 17 kg/m²/cm layer thickness
2nd Solution: Waterproofing of terraces with bituminous membranes covered with mineral chipping or aluminium leaf.

Any necessary repairs on the substrate are carried out using the polymer-modified cement mortars DUROCRET or DUROCRET-FAST. Bituminous membranes should be laid on a clean and dry substrate.

Adjacent membranes should overlap each other to a width of approximately 10 cm. The joints are sealed with a blowtorch and pressed with a trowel.

The gutters should be cleaned and then coated with ISOFLEX, reinforced with polyester fabric strip.

Using bituminous membranes is an ideal solution for waterproofing, as long as the membranes are carefully sealed and the joints with other elements are especially treated. It is recommended that bituminous membranes be placed by professionals.

Products
- ISOGUM P MIN Plastomeric bituminous membrane (APP) reinforced with polyester cloth 180 g/m² and mineral chipping
- ISODIEN 4 PF ALU Elastomeric bituminous membrane reinforced with polyester cloth 150 g/m² and covered with aluminium sheet
- ISOPAST Bituminous emulsion. Consumption: for horizontal, non-reinforced surfaces 0.5-1.0 kg/m²
- ISOLAC-BT Bituminous varnish. Consumption: 0.25-0.3 kg/m²
- ISOFLEX Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- ISOFLEX-PU 500 Brushable, polyurethane waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- ISOFLEX-T25 Brushable elastomeric waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- Polyester fabric or fiberglass mesh (10 cm wide), for reinforcing waterproofing layers

RECOMMENDATION:
In cases where the waterproofing layer should also have high resistance to extreme temperatures, instead of ISOFLEX, it is recommended to use ISOFLEX-T25 (-25°C to +120°C) or ISOFLEX-PU 500 (-40°C to +90°C).
WATERPROOFING OF TERRACES WITHOUT A SLOPE (WITH STANDING WATER)

First, the substrate should be thoroughly cleaned from any loose particles, grease, dust etc.

Next, the substrate is dampened, without leaving any water puddles.

Sharp edges, like the joints of the slab with vertical structures (parapets, stairwells etc.), should be dampened.

Component A (mortar) is mixed with component B (elastifying agent) and the indicated quantity of water, to form AQUAMAT-ELASTIC is formed. Instead of AQUAMAT-ELASTIC, we can use the ready-to-use ISOFLEX-PU 500.

The first layer of AQUAMAT-ELASTIC is applied with a brush, in strips 1 m wide. The slurry should be applied on the vertical structures (parapets etc.) at least 15-20 cm up.

While the layer of AQUAMAT-ELASTIC is still fresh, the reinforcing material (1 m wide) is positioned and embodied.

After drying, the polyester-reinforced with polyester cloth first layer is covered with a second layer of AQUAMAT-ELASTIC.

A 3rd layer of white AQUAMAT-ELASTIC is applied crosswise, once the previous layer has dried. The thickness of every layer should not exceed 1 mm.

The final layer of AQUAMAT-ELASTIC should be white in order to reduce the absorption of heat from the sun’s rays and extend the life of the waterproofing membrane.

After drying, the polyester-reinforced with polyester cloth first layer is covered with a second layer of AQUAMAT-ELASTIC.

The final layer of AQUAMAT-ELASTIC should be white in order to reduce the absorption of heat from the sun’s rays and extend the life of the waterproofing membrane.

PRODUCTS

- AQUAMAT-ELASTIC Elastic, two-component, brushable sealing slurry. Consumption: 1.0 kg/m²/layer or a total of 2.0-4.0 kg/m²
- ISOFLEX-PU 500 Brushable, polyurethane waterproofing membrane. Consumption: 1.0-1.5 kg/m²
- Polyester fabric, for reinforcing waterproofing layers
- DUROCRET Polymer-modified, repairing cement mortar. Consumption: 2.0-3.0 kg per meter of groove
- DUROCRET-FAST Fast-setting, repairing cement mortar. Consumption: 2.2-3.2 kg per meter of groove
WATERPROOFING OF TERRACES AND COVERING WITH TILES

Any necessary repairs on the gradient are carried out with the polymer-modified cement mortars DUROCRET or DUROCRET-FAST. If it is necessary to form an inclination on the terrace, then the light mortar SCREED-100 should be used. Waterproofing layers can be applied after 7 days.

The substrate should be thoroughly cleaned from any loose particles, grease, dust etc. Then, the substrate is dampened, without leaving any water puddles. The content of component A (mortar) is added into the liquid component B (elastifying agent), under continuous stirring, until AQUAMAT-FLEX is formed.

A layer of AQUAMAT-FLEX is applied locally, along the intersections of the terrace with vertical structures (parapets etc.), along existing cracks or expansion joints and joints between the terrace and any metal elements (ventilation, chimneys, rain gutters etc.). While still fresh, this layer is reinforced with a polyester fabric strip (10 cm wide).

After the local layer has dried, a layer of AQUAMAT-FLEX is applied with a brush all over the roof surface. If necessary, a second layer of AQUAMAT-FLEX is applied, in order to provide better adhesion of the reinforcement to AQUAMAT-FLEX.

A 2nd layer of AQUAMAT-FLEX is applied crosswise, once the previous layer has dried. The thickness of each layer should not exceed 1 mm.

For the adhesion of tiles, the elastic tile adhesive ISOMAT AK 22 is used. For the tile grouting we use MULTIFILL SMALTO 1-8.

AQUAMAT-FLEX and ISOMAT AK 22 constitute a perfect system for waterproofing/covering with tiles.

PRODUCTS

- **AQUAMAT-FLEX** Flexible, two-component, brushable sealing slurry. Consumption: 1.0 kg/m²/layer or a total of 2.0-4.0 kg/m²
- **Polyester fabric** for reinforcing waterproofing layers
- **ISOMAT AK 22** High performance, flexible polymer-modified tile adhesive. Consumption: 1.5-4.0 kg/m²
- **MULTIFILL SMALTO 1-8** Tile grout with porcelain effect, water-repellent for joint width 1-8 mm
Any necessary repairs on the gradient are carried out using the polymer-modified cement mortars DUROCRET or DUROCRET-FAST. If it is necessary to form an inclination on the terrace, then the light mortar SCREED-100 should be used. Waterproofing layers can be applied after 7 days.

The substrate should be thoroughly cleaned from any loose particles, grease, dust etc. Then, the substrate is dampened, without leaving any water puddles. The content of component A (mortar) is added into the liquid component B (elastifying agent), under continuous stirring, until AQUAMAT-FLEX is formed. The first layer of AQUAMAT-FLEX is applied with a brush, in strips 1 m wide. The slurry should be applied on the vertical structures (parapets etc.) at least 15-20 cm up. While the layer of AQUAMAT-FLEX is still fresh, the reinforcing material (1 m wide) is positioned and embodied. AQUAMAT-FLEX is applied over the entire roof surface, in strips of 1 m. The reinforcing material sheets should be positioned in sequence so that they overlap each other by 10 cm. After drying, the reinforced first layer is covered with a second layer of AQUAMAT-FLEX. A third coat of AQUAMAT-FLEX should be applied crosswise once the previous one has dried. The thickness of each layer should not exceed 1 mm.

After it has dried out, the extruded polystyrene boards are simply placed, on top of the waterproofing layers. Next, the polystyrene boards are covered with geotextile or plastic linoleum.

Finally, paving slabs or gravel (a 6-8 cm thick layer) are placed in order to protect the waterproofing and insulation layers from the sun and the wind. In this way, we can also ensure that the terrace can be walked on.

**PRODUCTS**
- **AQUAMAT-FLEX** Flexible, two-component, brushable sealing slurry. Consumption: 1.0 kg/m²/layer or a total of 2.0-4.0 kg/m²
- **Polyester fabric**, for reinforcing waterproofing layers
2. Problem: Waterproofing of balconies

The points of a balcony that are more sensitive to moisture are:

a) the intersection between the baseboard and the floor or the wall,

b) any cracked or absorptive tile grouts and

c) the absorptive coats of a balcony (old mosaic, schists etc.).

The problems of moisture could appear in the front or under the balcony, on the walls or parapets. Moisture could appear in the form of yellow spots, color ablation, weak or crumbling plaster or parts of concrete falling. Problems of moisture should be solved before restoring the damages. In residences under construction, waterproofing of balconies is similar to the one of terraces that will be covered with tiles (as presented on page 7).

SEALING OF PROBLEMATIC SPOTS

1. Water penetrating from the intersection between the baseboard and the tile or the plaster has caused bulge and ablation of the color ablation.

2. Primarily, the damaged color is removed with a spatula.

3. Thorough cleaning of the surface is necessary.

4. Then, the surface is primed with FLEX-PRIMER.

5. In order to avoid soiling the adjacent surfaces, the use of adhesive tape is necessary.

6. The intersection between the baseboard and the plaster is sealed with ISOMASTIC-A.

7. The mastic should be smoothed while it is still fresh and the adhesive tape should be removed straight after.

8. After ISOMASTIC-A has dried, the surface is painted with FLEXCOAT.

9. The intersection between the baseboard and the tiles is sealed with FLEX PU-40 or ELASTOTAN.

10. The mastic should be smoothed while it is still fresh and the adhesive tape should be removed straight after.

11. Dealing with the problem effectively will offer durability in time.

PRODUCTS

- **ISOMASTIC-A** Elastoplastic acrylic sealant
- **FLEX PU-40** Polyurethane adhesive and sealant
- **ELASTOTAN** Elastomeric adhesive mastic sealant
- **FLEXCOAT** High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- **FLEX-PRIMER** High quality acrylic water-based primer. Coverage: 5-10 m²/kg
RESTORATION OF CRACKED TILE GROUITS

Initially, the damaged tile grout should be mechanically removed with a spatula, wheel etc.

The joints should be carefully cleaned from dust or loose particles and then dampened.

MULTIFILL SMALTO 1-8 is added to water under continuous stirring.

Next, the grout should be spread diagonally all over the joints with a rubber float, in order to completely fill them.

When the grout is quite dry, the surface is wiped with a slightly wet sponge.

A slightly wet rag is used for the final cleaning.

PRODUCTS

- MULTIFILL SMALTO 1-8 Tile grout with porcelain effect, water-repellent for joint width 1-8 mm

WATERPROOFING OF ABSORPTIVE TILE GROUITS

The surfaces should be carefully cleaned from dust etc.

We pour NANOPRO-C onto the surface and apply it with a squeegee.

The material is left to react for 5 minutes. Next the excessive material is removed.

The surface is cleaned with a slightly wet cloth.

The final cleaning of the surface can be done after 6 hours.

PRODUCTS

- NANOPRO-C Nano-impregnation for protecting porous surfaces. Consumption: 0.1-0.2 l/m², depending on the absorptivity of the surface
- PS-21 Siloxane-based solution without solvents for waterproofing. Consumption: 0.2-0.4 l/m², depending on the absorptivity of the surface
- NANOPRO-L Nano-impregnation to protect surfaces against oils. Consumption: 0.05-0.10 l/m², depending on the absorptivity of the surface
3. Problem: Waterproofing of basements

Moisture problems in basements, due to repairs in underground water level or rain water, are a common phenomenon. The solution to such problems should be permanent because afterwards, basements are difficult and expensive. Therefore, it is crucial to carefully select and apply the right materials. Following are the integrated solutions of basement waterproofing when it is applied during the construction of the building and after the construction (internally).

WATERPROOFING OF BASEMENTS DURING THE CONSTRUCTION OF THE BUILDING

1. We add PLASTIPROOF, a plasticizer, type-A concrete waterproofing admixture, or AQUAMAT-ADMX, a crystalline waterproofing admixture for concrete, to reinforced concrete.

2. First, the substrate must be thoroughly cleaned from any possible formwork oil residues, loose particles, dust etc.

3. Externally, any cavities in the concrete should be cleaned from loose particles, aggregates etc. Form wires and distance pieces should be cut to a depth of 3 cm. Any working joints should be widened in a V-shape along their length, to a depth of 3 cm. The surface of the above areas should be thoroughly dampened and filled with DUROCRET or DUROCRET-FAST (polymer modified cement mortars).

4. Depending on the water pressure, 2-4 layers of AQUAMAT are applied onto the external walls of the basement after dampening. The coating surface must extend at least 50 cm above the ground level. Each layer must be completely dry before the next one is applied. To avoid cracking, each layer should not be thicker than 1 mm.

5. Intersections of the floor with vertical elements (concrete walls, columns), should be dampened and sealed, along their entire length with DUROCRET or DUROCRET-FAST (formation of a “groove”). 2-4 layers of AQUAMAT are applied onto the basement floor. The floor coating must extend on the concrete walls or columns at least 50 cm above the “groove” formed at the intersection with the floor. Each layer must be completely dry before the next one is applied.

PRODUCTS

- AQUAMAT Cement-based brushable sealing slurry. Consumption: 1.0 kg/m²/layer or a total of 2.0-4.0 kg/m²
- AQUAMAT-ADMX Concrete waterproofing admixture with crystalizing effect. Consumption: 0.8-1.0 kg per 100 kg of cement
- DUROCRET Polymer-modified, repairing cement mortar. Consumption: 2.0-3.0 kg per meter of groove
- DUROCRET-FAST Fast-setting, repairing cement mortar. Consumption: 2.0-3.2 kg per meter of groove
- PLASTIPROOF Plasticizer, type A – Concrete waterproofing admixture. Consumption: 0.2-0.5 kg per 100 kg of cement
WATERPROOFING OF BASEMENTS AFTER CONSTRUCTION (INTERNALLY)

This method of waterproofing can be used both to new constructions (in cases when external waterproofing is difficult to be accomplished), and to old constructions. In the case of old constructions, the waterproofing layers should be applied to surfaces that can stand the negative pressure of water (slab, walls of basement etc.). For that reason, plasters and tiles are removed. If prior to the application the basement is flooded, contact the technical department of ISOMAT in order to avoid mistakes or bad application.

PRODUCTS

- **AQUAMAT** Cement-based brushable sealing slurry. Consumption: 1.0 kg/m²/layer or a total of 2.0-4.0 kg/m²
- **DUROCRET** Polymer-modified, repairing cement mortar. Consumption: 2.0-3.0 kg per meter of groove
- **DUROCRET-FAST** Fast-setting, repairing cement mortar. Consumption: 2.2-3.2 kg per meter of groove
- **AQUAFIX** Rapid-setting cement for instant sealing of water leaks. Consumption: approx. 1.6 kg/lit

Substrate should be thoroughly cleaned from any loose particles, dust etc.

Intersections of the floor with vertical elements (concrete walls, columns), should be dampened and sealed, along their entire length with DUROCRET or DUROCRET-FAST polymer modified cement mortars (formation of a “groove”).

Form wires and distance pieces should be cut at a 3 cm depth. Any working joints should be widened in a V-shape along their length, at a depth of 3 cm. The surface of the above areas should be thoroughly dampened and filled with DUROCRET or DUROCRET-FAST polymer modified cement mortars. Also any cavities in the concrete should be filled with DUROCRET or DUROCRET-FAST.

Leaking points are fixed with AQUAFIX, a rapid-setting cement for instant sealing of water leaks.

After thoroughly dampening, the walls of basements are coated with AQUAMAT on 2-4 layers, depending on the pressure of water. The layer must extend on the concrete walls or columns at least 50 cm above the groove formed at the intersection with the floor. Each layer must be fully dry before the next one is applied. To avoid cracking, each layer should not be thicker than 1 mm.

Finally, AQUAMAT is applied in the same way to the floor of basement.

With AQUAMAT, a uniform waterproofing layer is shaped in the basement internally. Afterwards, a layer of coat, plaster or tiles can be applied.
4. Problem: Waterproofing of external walls

External facade walls, besides providing aesthetics to the construction, must also protect the building from rain water and humidity. Cracks in plasters, low quality colors or highly absorptive surfaces enable water to penetrate. Moisture problems can appear as damaged color or even totally crumbling plaster. The right solution to such problems must be permanent and durable in time solution.

SEALING OF SINGLE CRACKS ON PLASTERS

1. Water can penetrate the wall, even from a single crack.
2. Wherever it is required, the crack is opened with a spatula to a width of 3 mm.
3. Then, cracks should be thoroughly cleaned from dust.

4. The crack is sealed with elastoplastic, acrylic sealant ISOMASTIC-A. Instead of ISOMASTIC-A the two-component flexible putty FLEX-COVER, can also be used.
5. While the sealant is still fresh, it is formed with a spatula.
6. After ISOMASTIC-A has dried, the crack is painted with FLEXCOAT along its length.

PRODUCTS
- ISOMASTIC-A Elastoplastic acrylic sealant
- FLEXCOAT High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- FLEX-COVER Two-component flexible putty. Consumption: 40 g per running meter of joint

WATERPROOFING AND PAINTING OF TOTALLY CRACKED PLASTERS

1. Extended cracks in plaster out of being an aesthetic problem, may sometimes be dangerous for the plaster durability against water and frost.
2. Substrate should be thoroughly cleaned from dust etc.
3. The surface is primed with FLEX-PRIMER. Especially when the plaster is crumbling, FLEX-PRIMER stabilizes it.
4. After drying, the surface is painted with a layer of FLEXCOAT.
5. In cases of multiple cracks, the first layer of FLEXCOAT is reinforced, while it is still fresh, with the polyester fabric (1 m wide).
6. Two more layers of FLEXCOAT should be applied in order to cover the polyester fabric. Without the polyester fabric one layer of FLEXCOAT is enough.

PRODUCTS
- FLEXCOAT High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- FLEX-PRIMER High quality acrylic water-based primer. Coverage: 5-10 m²/kg
- Polyester fabric, for reinforcing waterproofing layers
WATERPROOFING AND PAINTING OF PLASTERS WITH DAMAGED COLOR

1. Damaged color is the first indication that the plaster is corrupted from water.

2. Old color should be scratched with a spatula and loose particles should be removed.

3. Then, substrates should be thoroughly cleaned from dust etc.

4. Next, the surface is primed with PRIMER ACRYL or FLEX-PRIMER.

5. After drying, the surface is painted with two layers of ISOMAT ACRYL or FLEXCOAT.

6. The 2nd layer of ISOMAT ACRYL or FLEXCOAT is applied after the first one has completely dried.

PRODUCTS
- ISOMAT ACRYL High quality acrylic emulsion paint for exterior use. Coverage: approx. 12 m² per liter, per layer
- PRIMER ACRYL Silicone acrylic micronized water based primer. Coverage: 10-15 m² per liter, per layer
- FLEXCOAT High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- FLEX-PRIMER High quality acrylic water-based primer. Coverage: 5-10 m²/kg

WATERPROOFING AND PAINTING OF WEAK OR DILAPIDATED PLASTERS

1. Crumbling plasters are a common phenomenon in walls with moisture problems.

2. First, the crumbling particles are removed with a spatula and the surface is thoroughly cleaned from dust.

3. Then, the surface is primed and stabilized with FLEX-PRIMER or NANO-SEAL.

4. The plaster is fixed with the repairing mortar UNICRET-FAST, improved with the resin ADIPLAST.

5. After the plaster has been sufficiently set, it is smoothed (by hand) with a spongy float.

6. As soon as the plaster has dried, the surface is primed again with PRIMER ACRYL or FLEX-PRIMER.

7. Finally, the surface is painted with two layers of ISOMAT ACRYL or FLEXCOAT.

PRODUCTS
- UNICRET-FAST Fast-setting, white repairing mortar. Consumption: approx. 14.7 kg/m²/cm layer thickness
- ADIPLAST Polymer latex for multiple improvement of mortars
- ISOMAT ACRYL High quality acrylic emulsion paint for exterior use. Coverage: approx. 12 m² per liter, per layer
- PRIMER ACRYL Silicone acrylic micronized water based primer. Coverage: 10-15 m² per liter, per layer
- FLEXCOAT High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- FLEX-PRIMER High quality acrylic water-based primer. Coverage: 5-10 m²/kg
- NANO-SEAL Waterproofing and stabilisation of surfaces. Consumption: 0.1-0.2 kg/m², depending on the absorptivity of the surface
WATERPROOFING AND PAINTING OF CRUMBLING PLASTERS

1. The humidity of the plaster is so intense that the masonry is revealed.
2. Primarily, all crumbling parts of plaster and dust are thoroughly cleaned.
3. Then the surface is primed and stabilized with FLEX-PRIMER or NANO-SEAL.
4. For the repair we use the polymer modified cement mortars DUROCRET or DUROCRET-FAST.
5. After 7 days and when DUROCRET or DUROCRET-FAST have dried the surface is primed again with PRIMER ACRYL or FLEX-PRIMER.
6. Finally, the surface is painted with ISOMAT ACRYL or FLEXCOAT in two layers.

PRODUCTS
- **DUROCRET** Polymer-modified, repairing cement mortar. Consumption: approx. 15 kg/m²/cm layer thickness
- **DUROCRET-FAST** Fast-setting, repairing cement mortar. Consumption: approx. 17 kg/m²/cm layer thickness
- **ISOMAT ACRYL** High quality acrylic emulsion paint for exterior use. Coverage: approx. 12 m² per liter, per layer
- **PRIMER ACRYL** Silicone acrylic micronized water-based primer. Coverage: 10-15 m² per liter, per layer
- **FLEXCOAT** High quality, elastic, waterproofing paint. Coverage: 8-12 m² per liter, per layer
- **FLEX-PRIMER** High quality acrylic water-based primer. Coverage: 5-10 m²/kg
- **NANO-SEAL** Waterproofing and stabilization of surfaces. Consumption: 0.1-0.2 kg/m², depending on the absorptivity of the surface

WATERPROOFING OF WALLS COVERED WITH NATURAL STONES OR DECORATIVE OVERLAYS

1. Walls covered with natural stones or decorative overlays need waterproofing without losing their initial appearance.
2. The surface should be thoroughly cleaned from dust etc. Any cavities in joints are filled with DUROCRET or DUROCRET-FAST.
3. PS-20 is applied with a brush, roller or spray. Two layers are usually enough. The second layer is applied, once the first layer has completely dried.
4. PS-20 penetrates the pores of the surface without changing its appearance. Instead of PS-20, NANOPRO-C can also be used.

PRODUCTS
- **PS-20** Siloxane-based solution for waterproofing. Consumption: 0.2-0.4 l/㎡, depending on the absorptivity of the surface
- **NANOPRO-C** Nano-impregnation for protecting porous surfaces. Consumption: 0.1-0.2 l/㎡, depending on the absorptivity of the surface
- **DUROCRET** Polymer-modified, repairing cement mortar. Consumption: approx. 15 kg/m²/cm layer thickness
- **DUROCRET-FAST** Fast-setting, repairing cement mortar. Consumption: approx. 17 kg/m²/cm layer thickness
Moisture problems in damp rooms are a very common phenomenon. Such problems appear on walls and ceilings adjacent to bathrooms, kitchens etc., that have not been waterproofed during the construction. Before trying to solve the problem (peeling color coat, crumbling plaster etc.) it is essential to detect the reason that caused the moisture. Two of the most usual problems and their solutions are presented below.

SEALING OF JUNCTIONS BETWEEN DIFFERENT MATERIALS

1. The sealant has been damaged due to moisture and mildew has started to grow.
2. First, the old sealant is mechanically removed with a chisel etc., trying not to damage the sanitary ware. Then, the surface is cleaned with alcohol.
3. It is necessary to use adhesive tape in order to avoid stains during application.
4. The intersection is sealed with the mildew-resistant silicone sealant DOMOSIL-S or DOMOSIL-MICRO.
5. The sealant is smoothed, while it is still fresh and after that, the adhesive tape is removed.
6. DOMOSIL-S or DOMOSIL-MICRO seal and waterproof the joint and help to prevent mildew growth.

PRODUCTS
- **DOMOSIL-S** Mildew-resistant silicone sealant
- **DOMOSIL-MICRO** Anti-mould silicone sealant with built in Microban® technology

WATERPROOFING OF ABSORPTIVE TILE GROUTS

1. Moisture problems in rooms adjacent to bathrooms or kitchens appear because tile grouts are absorptive.
2. Primarily, the tiles are cleaned with a wet sponge.
3. **NANOPRO-C** is applied with a brush along the joints in two layers.
4. **NANOPRO-C** penetrates the tile grout and waterproofs it without changing its appearance. Instead of **NANOPRO-C** we can also use **PS-21**.

PRODUCTS
- **NANOPRO-C** Nano-impregnation for protecting porous surfaces. Consumption: 0.1-0.2 l/lit/m², depending on the absorptivity of the surface
- **PS-21** Siloxane-based solution without solvents for waterproofing. Consumption: 0.2-0.4 l/lit/m², depending on the absorptivity of the surface
### Waterproofing Materials

#### Polyurethane & Acrylic Waterproofing Materials

**ISOFLEX**  
Brushable elastomeric waterproofing membrane  
It forms a continuous, elastic, waterproof, vapor-permeable sealing layer, without forming seams or joints.  
*Color*: White, redbrown.  
*Consumption*: 1.0-1.5 kg/m².  
*Packaging*: Plastic containers of 1 kg, 5 kg, 15 kg, 25 kg and drums of 150 kg.  

**ISOFLEX-T25**  
Brushable elastomeric waterproofing membrane  
The same as ISOFLEX. Additionally, it is also recommended for use in extreme weather conditions, as it maintains its elasticity even in temperatures from -25°C to +120°C.  
*Color*: White, redbrown.  
*Consumption*: 1.0-1.5 kg/m².  
*Packaging*: Plastic containers of 1 kg, 5 kg, 15 kg, 25 kg and drums of 150 kg.  

**ISO-PRIMER**  
Primer of brushable elastomeric waterproofing membranes  
Primer of ISOFLEX and ISOFLEX-T25.  
*Color*: White.  
*Consumption*: 0.2-0.3 kg/m².  
*Packaging*: Plastic containers of 1 kg, 5 kg and 20 kg.  

#### Cement-Based Waterproofing Materials

**AQUAMAT-ELASTIC**  
Elastic, two-component, brushable sealing slurry  
Suitable for substrates that show or are expected to show haircracks due to contraction-expansion or vibrations. Ideal for roofs, flower stands, swimming pools, tunnels, above ground water tanks etc. It is also recommended for waterproofing under tiles combined with the elastic tile adhesive ISOMAT AK-ELASTIC.  
*Color*: White, grey.  
*Consumption*: 2.0-4.0 kg/m².  
*Packaging*: 7 kg (A+B) and 18 kg (A+B) in white, 35 kg (A+B) in white and grey.  

**ISOPAST**  
Bituminous emulsion  
It provides excellent adhesion and resistance to acid and alkaline solutions. Used for waterproofing foundations, footings, retaining walls, floors, inclined (pitched) roofs etc. Also used as a primer for fixing bituminous membranes.  
*Color*: Black.  
*Consumption*: 0.2-1.0 kg/m²/layer.  
*Packaging*: Plastic containers of 5 kg and 19 kg.  

#### Bituminous Waterproofing Materials

**ISOGUM P MIN**  
Plastomeric bituminous membrane  
Plastomeric bituminous membrane (APP) reinforced with non-woven polyester fabric of 180 g/m² and covered with mineral chippings. It is fixed with torch welding without using bituminous glue.  
*Weight*: 4.0 kg/m² and 4.5 kg/m².  
*Packaging*: Rolls of 1 m x 10 m.  

**ISODIEN 4 PF ALU**  
Elastomeric bituminous membrane  
Elastomeric bituminous membrane reinforced with non-woven polyester fabric of 150 g/m² and covered with aluminium leaf. It is fixed with torch welding without using bituminous glue.  
*Weight*: 4.0 kg/m².  
*Packaging*: Rolls of 1 m x 10 m.  

**PRIMER-PU 500**  
Brushable polyurethane waterproofing membrane  
One-component brushable, polyurethane, liquid membrane. Used for the continuous, free of seams or joints, elastic, vapor-permeable waterproofing of terraces.  
*Color*: White, grey, redbrown.  
*Consumption*: Approx. 1.5 kg/m².  
*Packaging*: Metal containers of 1 kg, 6 kg and 25 kg.  

#### Waterproofing Impregnation Materials

**PS-20**  
Siloxane-based solution for waterproofing  
It ensures extremely high water-repellence and long term protection. It is applied on various surfaces for their protection against rain. It is also suitable for waterproofing tile joints.  
*Color*: Transparent.  
*Consumption*: 0.2-0.4 l/m², depending on the absorptivity of the surface.  
*Packaging*: Metal containers of 1 l, 3 l and 20 l.  

**NANOPRO-C**  
Nano-impregnation for protecting porous surfaces  
Water-based emulsion with high penetrating ability, based on nano-molecular structure. Suitable for application on concrete, plaster, tile grouts, natural stone etc. For indoor and outdoor use.  
*Color*: White (transparent after drying).  
*Consumption*: 0.1-0.2 l/m², depending on the absorptivity of the surface.  
*Packaging*: Plastic containers of 1 l, 5 l and 20 l.  

**PS-21**  
Siloxane-based solution without solvents for waterproofing  
It provides excellent water-repellence and long term protection. It is used for the protection of surfaces against rain and for waterproofing tile joints. It can also be used even on slightly wet substrates.  
*Color*: White (transparent after drying).  
*Consumption*: 0.25-0.3 kg/m²/layer.  
*Packaging*: Metal containers of 5 kg and 17 kg.  

**NANOPRO-L**  
Nano-impregnation to protect surfaces against oils  
Protects porous and slightly porous surfaces (marbles, granites etc.), from oil stains, moisture and salt stains and prevents fungii-mould growth. For indoor and outdoor use.  
*Color*: White (transparent after drying).  
*Consumption*: 0.05-0.10 l/m², depending on the absorptivity of the surface.  
*Packaging*: Plastic containers of 1 l, 5 l and 20 l.
ADMIXTURES & PRIMERS

PLASTIPROOF
Plasticizer, type A – Concrete waterproofing admixture
Plasticizer-waterproofing admixture (ASTM C-494, type A, ELOT EN 934-2.72 & T9). Suitable for preparation of concrete with low permeability and improved physical properties.
Color: Dark brown. Consumption: 0.2-0.5 kg per 100 kg of cement.
Packaging: Plastic containers of 5 kg and 20 kg, drums of 240 kg and tanks of 1000 kg.

AQUAMAT-ADIMIX
Concrete waterproofing admixture with crystallizing effect
Improves resistance to water permeability and does not affect vapor permeability of concrete. It remains permanently active and recovers equally well positive and negative hydrostatic pressure. Suitable for waterproofing foundations, basements, tanks, wastewater treatment, swimming pools etc.
Color: Grey. Consumption: 0.8-1.0 kg per 100 kg of cement.
Packaging: Paper bags of 20 kg.

COLORS & PRIMERS FOR EXTERIORS

ISOMAT ACRLY
High quality acrylic emulsion paint for exterior use
It is characterized by high water-repellency, excellent surface coverage and durability against weather and ageing. It has an excellent workability and dries quickly. Certified as cool paint.
Color: White. In thousand color hues of the ISOMAT COLOR SYSTEM color chart. Coverage: Approx. 12 m² per liter, per layer.
Packaging: Plastic buckets of 1 lit, 3 lit and 10 lit.

FLEXCOAT
High quality, elastic, waterproofing paint
Suitable for painting and waterproofing walls, protecting of bituminous layers, coloring and waterproofing asbestos-cement roofs etc. For exterior and interior use.
Color: White and in thousand color hues of the ISOMAT COLOR SYSTEM color chart. Coverage: 8-12 m² per liter, per layer.
Packaging: Plastic buckets of 3 lit and 10 lit.

PRIMER ACRYL
Silicone acrylic microparticle water based primer
Protects from rising moisture and salts stains. It stabilizes weak substrates. It is used on external porous surfaces that are going to be covered with paints or plasters.
Color: Light yellow. Coverage: 10-15 m² per liter, per layer.
Packaging: Plastic containers of 1 lit, 5 lit, 10 lit and 20 lit.

FLEX-PRIMER
High quality acrylic water-based primer
In combination with the elastic waterproofing paint FLEXCOAT, it constitutes an excellent system for waterproofing of walls.
Color: White. Coverage: 5-10 m²/kg.
Packaging: Plastic containers of 1 kg, 5 kg, 10 kg and 20 kg.

TILES ADHESION & GROUTING

ISOMAT AK 25
High performance, elastic, polymer-modified tile adhesive
Appropriate for fixing all kinds of tiles on walls and floors, indoors and outdoors. For applications where elasticity, adhesion, and moisture resistance is required (e.g. heated floors, metallic surfaces, swimming pools, gyms, pools). It is classified as C2 TE S2 adhesive, according to EN 12004 and EN 12002.
Color: White, grey. Consumption: 1.5-4.0 kg/m².
Packaging: Bags of 5 kg and 25 kg.

MULTIFILL SMALTO 1-8
Colored, water-repellent tile grout of porcelain texture
It offers high mechanical strength, superb color stability and great water-repellence. Blocks the formation of bacteria. It gives a smooth and glossy final surface. Suitable for joint width 1-8 mm. It is classified as C62 WA tile grout, according to EN 13888.
Color: 34 color shades. Consumption: 0.2-2.0 kg/m², depending on tile and joint dimensions. Packaging: Bags of 2 kg, 4 kg and 20 kg.

ELASTIC JOINT SEALANTS

ISOMASTIC-A
Elastomeric acrylic sealant
Elastomeric sealant without solvents based on acrylic polymers. Suitable for sealing work joints, thin expansion joints or plaster cracks in interior or exterior areas. Also suitable for slightly wet surfaces. Easily paintable.
Color: White, grey. Consumption: Joint 10 mm x 10 mm: 1 cartridge/2.8 m of joint length. Joint 5 mm x 5 mm: 1 cartridge/11.2 m of joint length.
Packaging: Cartridges of 280 ml.

DOMOSIL-S
Mildew-resistant silicone sealant
Suitable for sealing joints 3-40 mm wide, on non-porous materials such as glass, aluminum, porcelain, ceramic etc. It is also applied in high humidity areas (bathrooms, kitchens etc.). Prevents development of fungi that creates stains and black spots.
Color: Transparent, white. Consumption: Joint 10 mm x 10 mm: 1 cartridge/3 m of joint length. Joint 5 mm x 5 mm: 1 cartridge/12 m of joint length.
Packaging: Cartridges of 280 ml.

DOMOSIL-MICRO
Anti-mould silicone sealant
with Microban® technology
For sealing joints 3-40 mm wide on materials such as glass, aluminum, porcelain, non-porous ceramics etc. It is applied in high humidity areas (kitchens, bathrooms etc.). With normal cleaning practices it remains stable even after 10 years.
Color: Transparent, white.
Consumption: Joint 10 mm x 10 mm: 1 cartridge/3 m of joint length. Joint 5 mm x 5 mm: 1 cartridge/12 m of joint length.
Packaging: Cartridges of 280 ml.

FLEX PU-40
Polyurethane adhesive and sealant
Ideal for sealing joints where high elasticity is required. Provides exceptional adhesion to synthetic stones, metal, aluminium, wood, ceramic tiles, plastic etc. Applicable only in internal and external.
Color: White, grey, brown. Consumption: Joint 10 mm x 10 mm: 1 cartridge/3 m of joint length. Joint 5 mm x 5 mm: 1 cartridge/12 m of joint length.
Packaging: Cartridges of 310 ml and sausages of 600 ml.

CEMENT-BASED MORTARS

DUROCET
Polymer-modified repairing cement mortar
Suitable for patching and repairing concrete, masonry and plaster, formation of grooves or ridgepoles etc. It is classified as a PCC R2 type mortar, according to EN 1504-3.
Color: White, grey, redbrown.
Consumption: Approx. 15 kg/m²/cm layer thickness.
Groove formation: 2.0-3.0 kg/m².
Packaging: Bags of 5 kg and 25 kg.

DUROCET-FAST
Fast-setting, repairing cement mortar
Suitable for repairs on concrete, cement mortars, masonry, plasters and generally wherever high strength and fast application is necessary. It is classified as type PCC R2, repairing cement mortar for concrete, according to EN 1504-3. Pot life: 45 min at +20°C.
Color: Grey.
Consumption: Approx. 17 kg/m²/cm layer thickness.
Groove formation: 2.2-3.2 kg/m².
Packaging: Bags of 25 kg.

UNICRET-FAST
Fast-setting, white repairing mortar
Suitable for fast plaster repairs in old or new constructions. It can be used instead of gypsum. It is classified as GP CS 1, W0 mortar, according to EN 996-1.
Color: White.
Consumption: Approx. 14.7 kg/m²/cm layer thickness.
Packaging: Bags of 5 kg and 25 kg.

AQUAFIX
Rapid-setting cement for instant sealing of water leaks
Used for instant plugging of local or superficial water leaks, rapid fixing and anchoring.
Color: Grey.
Consumption: Approx. 1.6 kg/lit.
Packaging: Plastic containers of 1 kg, 5 kg and 15 kg.