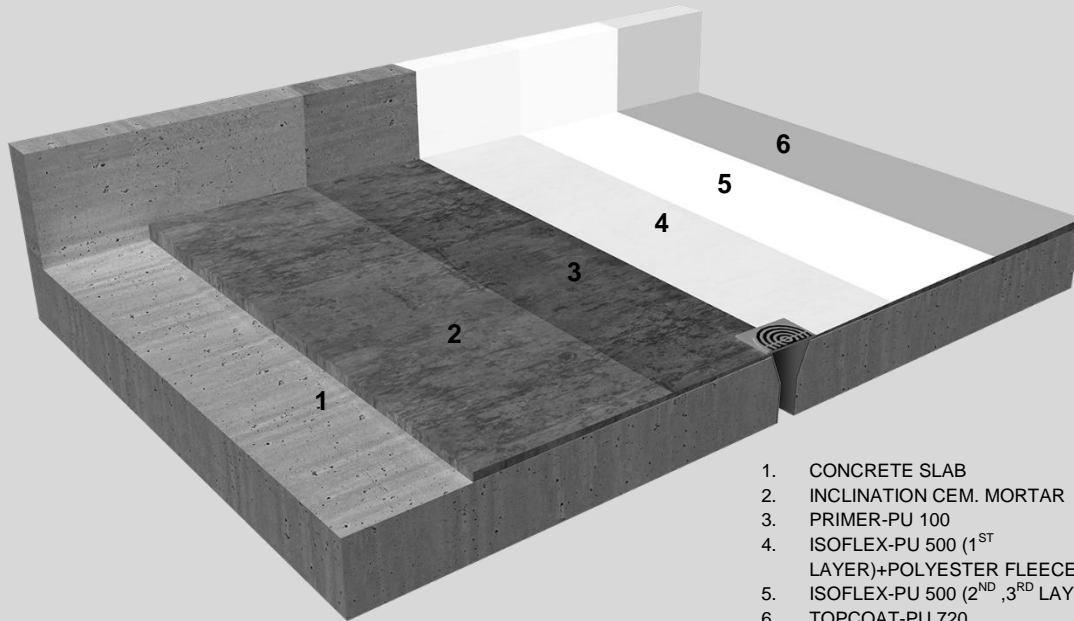


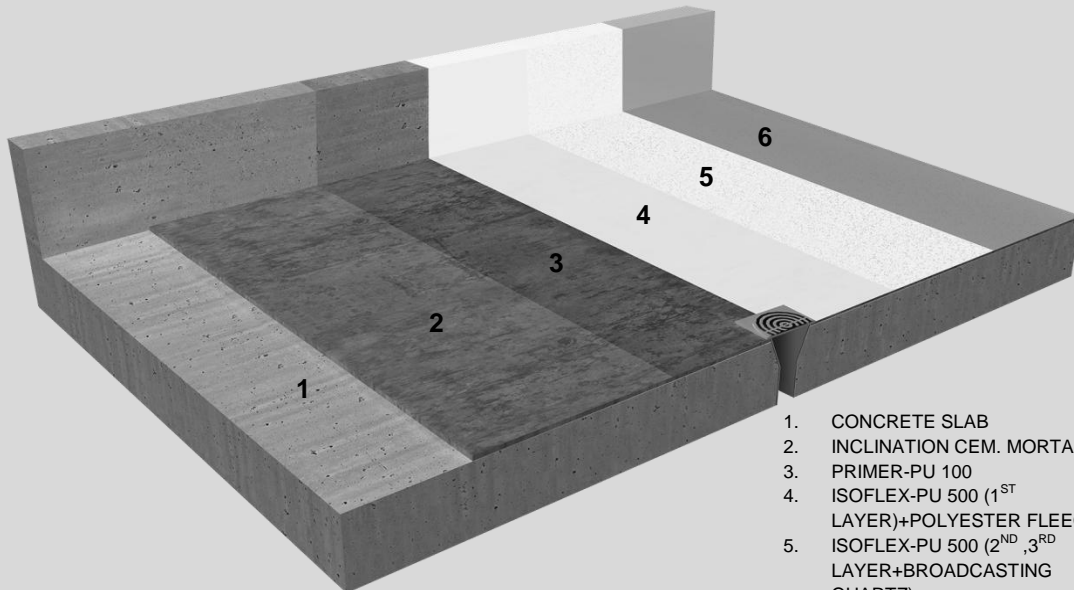
WATERPROOFING OF AN ACCESSIBLE FLAT ROOF WITH A POLYURETHANE LIQUID MEMBRANE AND A PROTECTIVE ALIPHATIC COATING

A) WATERPROOFING OF AN ACCESSIBLE FLAT WITH A POLYURETHANE LIQUID MEMBRANE AND A PROTECTIVE ALIPHATIC COATING – SMOOTH SURFACE



1. CONCRETE SLAB
2. INCLINATION CEM. MORTAR
3. PRIMER-PU 100
4. ISOFLEX-PU 500 (1ST LAYER)+POLYESTER FLEECE
5. ISOFLEX-PU 500 (2ND, 3RD LAYER)
6. TOPCOAT-PU 720

B) WATERPROOFING OF AN ACCESSIBLE FLAT WITH A POLYURETHANE LIQUID MEMBRANE AND A PROTECTIVE ALIPHATIC COATING – SLIP-RESISTANT SURFACE



1. CONCRETE SLAB
2. INCLINATION CEM. MORTAR
3. PRIMER-PU 100
4. ISOFLEX-PU 500 (1ST LAYER)+POLYESTER FLEECE
5. ISOFLEX-PU 500 (2ND, 3RD LAYER)+BROADCASTING QUARTZ)
6. TOPCOAT-PU 720

SOLUTION: Waterproofing of an accessible flat roof with a polyurethane waterproofing liquid membrane and a protective aliphatic coating

Related Materials

| | |
|---|---|
| ISOFLEX-PU 500 | One-component polyurethane, waterproofing liquid membrane for flat roofs |
| TOPCOAT-PU 720 | One-component, aliphatic, elastic, polyurethane top coat |
| PRIMER-PU 100 | One-component polyurethane primer |
| PRIMER-PU 140 | Two-component polyurethane primer for surfaces with high moisture content |
| DUROCRET-PLUS | Polymer-modified, fiber-reinforced repairing mortar |
| POLYESTER FLEECE 60g/m² | Polyester fleece for reinforcing waterproofing layers |
| FLEX PU-30 S/FLEX PU-50 S | Polyurethane sealants |

I. NATURE OF PROBLEM-REQUIREMENTS

Waterproofing of flat roofs, either done during the construction of a building or afterwards, apart from ensuring their full watertightness, should present special resistance to weathering, reliability and durability, elasticity and good adhesion to the substrate.

In case the flat roof is to be used frequently by pedestrians with the requirement of slip resistance and color stability over time (especially in dark shades), the final exposed surface must have the necessary resistance to mechanical stress and friction, as well as show long-term resistance to ultraviolet radiation.

II. SOLUTION

These requirements are fully covered by the polyurethane liquid membrane system **ISOFLEX-PU 500** and **TOPCOAT-PU 720**. ISOFLEX-PU 500 is a one-component, polyurethane, waterproofing liquid membrane for flat roofs, which constitutes the basic layer of the system, while TOPCOAT-PU 720 is a one-component, aliphatic, elastic polyurethane paint and is the final exposed surface of the system.

This two-material system shows excellent adhesion to the substrate, high flexibility, high resistance to weathering and UV radiation. It presents high resistance to standing water, and thus can be used on roofs, without particularly good inclinations, too.

It creates a continuous, elastic membrane with excellent mechanical strength, without joints or seams and is used for universal sealing of roof surfaces. As a system, it can be used as a sealing layer, as well, for balconies, patios, sidewalks and light vehicle traffic areas (e.g. parking lots).

It applies to all common roof substrates, such as concrete, terrazzo, old tile layers, etc.

III. APPLICATION

Substrate preparation

The substrate must be dry (moisture content <4%) and free from loose particles, dust, grease, etc.

Local restorations or repairs of the roof elements (concrete, cement mortar, etc.) are made with the polymer-modified, fiber-reinforced, type PCC R3 cement mortar, **DUROCRET-PLUS**.

Surface priming

As soon as the materials that may have been used for smoothing the substrate have dried, the one-component polyurethane primer, **PRIMER-PU 100** is applied on the clean and dry concrete surface (moisture content <4%). The primer is evenly applied across the surface with a brush, roller or by spraying.

Consumption of polyurethane primer PRIMER-PU 100: 200-300 g/m².

In case the substrate has moisture content >4%, the PRIMER-PU 140 which is a polyurethane, two-component primer for surfaces with high moisture content is applied instead of the polyurethane primer PRIMER-PU 100.

Consumption of PRIMER-PU 140: 200-250 g/m².

Application of ISOFLEX-PU 500

As soon as the polyurethane primer PRIMER-PU 100 has dried (approx. 2-3 hours), the polyurethane waterproofing liquid membrane ISOFLEX-PU 500 is totally reinforced with 100 cm wide strips of polyester fleece (60 g/m²), which overlap one other by 10 cm. The first layer of the polyurethane waterproofing liquid membrane ISOFLEX-PU 500 is applied in order to cover the reinforcement (to a width of 100 cm), and while it is still fresh, the strip of polyester fleece is embedded. The same application procedure is followed in the remaining surface. As soon as this layer has set, after 8-24 hours depending on weather conditions, two extra layers of the polyurethane waterproofing liquid membrane ISOFLEX-PU 500 are applied on the entire surface of the roof, fully covering the reinforcement. The second coat can be applied as soon as the first one has dried, after 8-24 hours, depending on the weather conditions.

ISOFLEX-PU 500 could be applied also with the addition of ACCELERATOR-5000. ACCELERATOR-5000 is a special set accelerator for ISOFLEX-PU 500 that enables its application at low temperatures or in thicker layers. It also increases the thixotropy and mechanical strength of ISOFLEX-PU 500.

Total consumption of the polyurethane, waterproofing liquid membrane, ISOFLEX-PU 500: 2.0-2.25 kg/m², depending on the substrate.

Waterproofing extends to the vertical surfaces (parapet, stairwell termination, etc.) to a minimum height of 15-20 cm, in order for a watertight basin to be formed.

Cracks on the substrate (wider than 1 mm) have to be initially primed locally and sealed with the polyurethane sealants FLEX PU-30 S or FLEX PU-50 S. In case of cracks < 1 mm, no sealing is required.

A) Forming a smooth surface

Application of the one-component, aliphatic, elastic polyurethane top coat, **TOPCOAT-PU 720**

As long as the last layer of the polyurethane, waterproofing liquid membrane for flat roofs, ISOFLEX-PU 500, has dried, the entire surface may be brushed with the aliphatic polyurethane top coat **TOPCOAT-PU 720**. The aliphatic polyurethane top coat TOPCOAT-PU 720 is applied by roller

in two layers. The second layer is applied crosswise with respect to the first one, after 4-24 hours, depending on the weather conditions.

Consumption of the aliphatic polyurethane top coat **TOPCOAT-PU 720**: 0.30-0.35 kg/m², depending on the substrate.

B) Forming a slip-resistant surface

In order to create the required slip resistance on the final surface, the following procedure has to be followed: In the last total layer of the polyurethane, brushable, waterproofing membrane for roofs, ISOFLEX-PU 500 and, while this is still fresh, quartz sand (Ø 0.3-0.8 mm) is broadcast. The quartz sand should be completely dry. As soon as the polyurethane, waterproofing liquid membrane for roofs, ISOFLEX-PU 500 has hardened, any loose grains are removed using a high-suction vacuum cleaner.

Quartz sand consumption: approx. 2.5-3.0 kg/m².

Application of the one-component, aliphatic, elastic polyurethane top coat, TOPCOAT-PU 720

As soon as the last layer of the polyurethane, waterproofing liquid membrane for roofs, ISOFLEX - PU 500 has dried and any loose quartz sand grains have been removed, the entire surface is coated with the one-component, polyurethane, aliphatic, elastic top coat, **TOPCOAT-PU 720**. The aliphatic, elastic polyurethane top coat, TOPCOAT-PU 720, is applied by roller in two layers. The second layer is applied crosswise to the first one, after 4-24 hours, depending on the weather conditions.

Consumption of the aliphatic, elastic, polyurethane top coat, TOPCOAT-PU 720: 0.40-0.45 kg/m², depending on the substrate.

IV. NOTES

- ISOFLEX-PU 500 may be applied when the ambient temperature is 5°C and rising, and the temperature of the substrate is a minimum of 3 degrees above the dew point. The maximum application temperature is approximately 35°C. Low temperatures retard curing while high temperature accelerates curing. High values of humidity may affect the final finish of the membrane.
- Maximum consumption of ISOFLEX-PU 500 per layer should not exceed 750 g/m². With the addition of ACCELERATOR-5000 each layer should not exceed the 1.25 kg/m².
- Excessive stirring of the polyurethane, waterproofing liquid membrane for flat roofs, ISOFLEX-PU 500, and the aliphatic polyurethane top coat TOPCOAT-PU 720 should be avoided to prevent air entrapment.
- Consult the instructions for safe use and precautions written on the packaging.