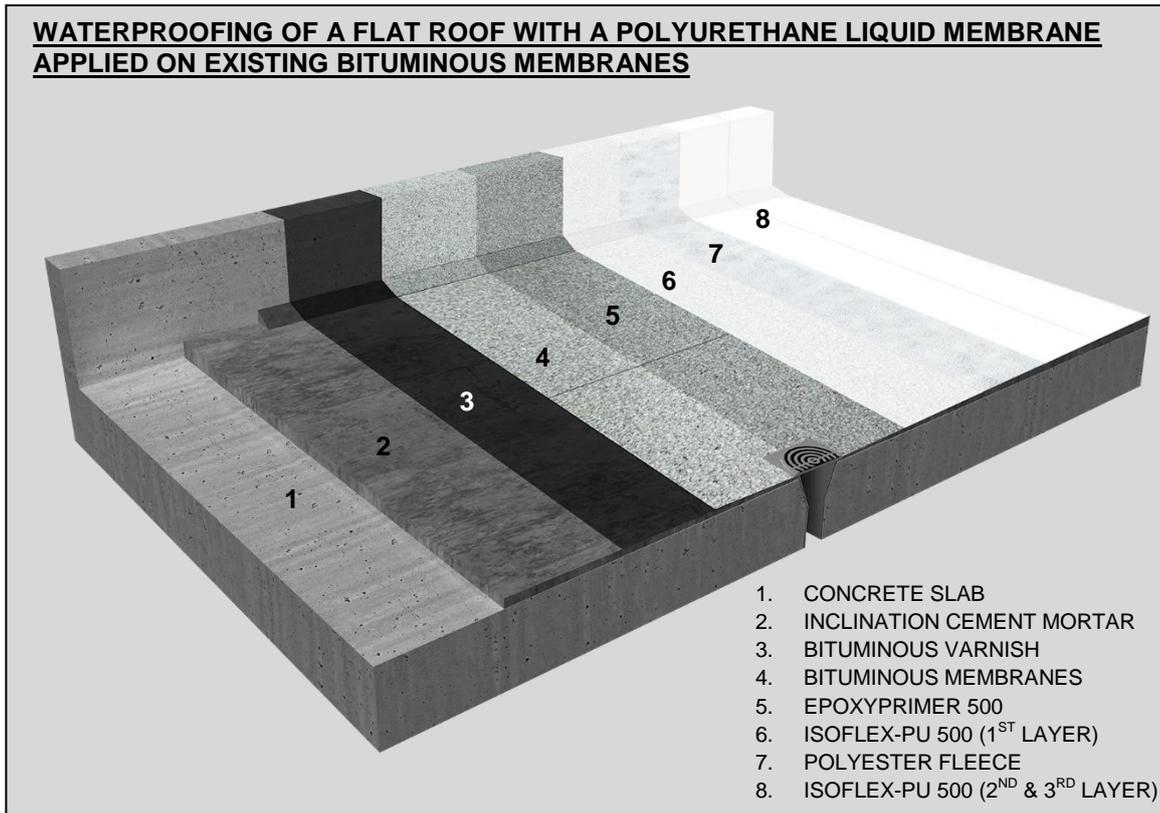


**WATERPROOFING OF A FLAT ROOF WITH A POLYURETHANE LIQUID MEMBRANE APPLIED ON EXISTING BITUMINOUS MEMBRANES**



**SOLUTION: Waterproofing of a flat roof with a polyurethane liquid membrane applied on existing bituminous membranes**

**Related Materials**

|   |   |
|---|---|
| <b>ISOFLEX-PU 500</b>                       | One-component, polyurethane, waterproofing liquid membrane for flat roofs |
| <b>EPOXYPRIMER-500</b>                      | Two-component, water-soluble epoxy primer                                 |
| <b>PRIMER-PU 140</b>                        | Two-component polyurethane primer for surfaces with high moisture content |
| <b>POLYESTER FLEECE 60 gr/m<sup>2</sup></b> | Polyester fleece for reinforcing waterproofing layers                     |
| <b>FLEX PU-30 S/FLEX PU-50 S</b>            | Polyurethane sealants   |
| <b>ISOLAC-BT</b>                            | Bituminous varnish  |
| <b>ISOMAC</b>                               | Bituminous mastic   |
| <b>TIXOPHALTE</b>                           | Elastoplastic, bituminous adhesive and sealing sealant                    |

## I. NATURE OF THE PROBLEM - REQUIREMENTS

Waterproofing of flat roofs with the use of bituminous membranes has been a quite common solution for many years. Many old waterproofing layers with bituminous membranes, however, require replacement or repair.

If the condition of the bituminous membranes is considered such that it is not required to completely dismantle and replace them with a new sealing layer of bituminous membranes or some other waterproofing material, there is also the possibility of local repair and application of a new universal waterproofing layer onto the existing bituminous membranes.

Besides ensuring full water tightness, this new waterproofing layer should also exhibit excellent adhesion to the substrate of bituminous membranes, reliability and durability, elasticity and resistance to weathering.

## II. SOLUTION

These requirements are fully covered by the one-component, polyurethane liquid membrane, **ISOFLEX-PU 500**. It creates a continuous, elastic membrane with excellent mechanical strength, without joints or seams, and is used both for universal waterproofing of roof surfaces and for local waterproofing. It shows high resistance to standing water, so it can also be used on flat roofs where such phenomena appear due to insufficient inclination.

Its easy application makes it ideal for subsequent waterproofing of flat roofs, as well as repairs of existing waterproofing layers of bituminous membranes.

## III. APPLICATION

### Substrate preparation (bituminous membrane layer)

Initially, the existing layer of bituminous membranes should be repaired, where necessary. The detached parts of the membranes, e.g. joints between the membranes or joints with other materials, are refitted with suitable materials. For this purpose, the cold-applied, bituminous mastic, **ISOMAC**, or the cold-applied, elastoplastic adhesive and sealing mastic, **TIXOPHALTE**, can be used.

In areas where the bituminous membranes have become detached from the substrate in larger parts and are going to be adhered on concrete surface using a blowtorch, the first surface to be primed is the one with the bituminous solvent-based varnish, **ISOLAC-BT**.

The final, repaired surface of bituminous membranes should be cleaned of loose materials (e.g. detached tiles) and dust.

### Priming of the surface

As soon as the materials that may have been used for repairs have dried, the two-component, water-soluble epoxy primer, **EPOXYPRIMER-500** is applied on the clean and dry surface of the bituminous membrane. The water-soluble epoxy primer is uniformly applied on the entire surface by brush, roller or spraying.

Consumption of the two-component, water-soluble epoxy primer, EPOXYPRIMER-500: 150-200 g/m<sup>2</sup>.

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 EPOXYPRIMER-500.

Consumption of PRIMER-PU 140: 200-250 g/m<sup>2</sup>.

### **Application of ISOFLEX-PU 500**

As soon as the two-component, water-soluble epoxy primer, EPOXYPRIMER-500 has been applied and the moisture becomes <4%, the polyurethane waterproofing liquid membrane ISOFLEX-PU 500 is totally reinforced with 100 cm wide strips of polyester fleece (60 g/m<sup>2</sup>), which overlap one other by 5-10 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 fabric 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/m<sup>2</sup>, 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.

It is recommended to reinforce ISOFLEX-PU 500 with the polyester fabric along the edges, at the joint of the flat roof with the vertical elements (parapets, stairwell termination, etc.), pipe joints, ventilation joints, metal element joints, etc.

### **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/m<sup>2</sup>. With the addition of ACCELERATOR-5000 each layer should not exceed the 1.25 kg/m<sup>2</sup>.
- Consult the directions for safe use and precautions written on the packaging.