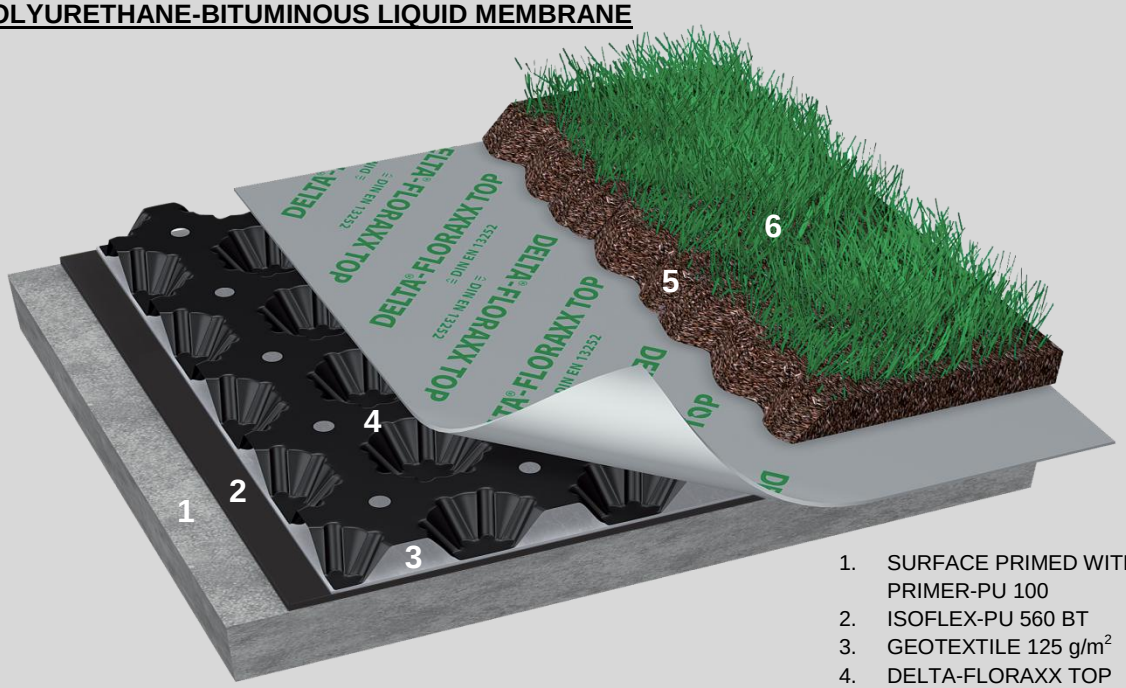
WATERPROOFING GREEN ROOFS

WATERPROOFING GREEN ROOFS WITH ISOFLEX-PU 560 BT TWO-COMPONENT, POLYURETHANE-BITUMINOUS LIQUID MEMBRANE



1. SURFACE PRIMED WITH PRIMER-PU 100
2. ISOFLEX-PU 560 BT
3. GEOTEXTILE 125 g/m^2
4. DELTA-FLORAXX TOP
5. SOIL
6. PLANTING

SOLUTION: Waterproofing green roofs with ISOFLEX-PU 560 BT, the two-component, polyurethane-bituminous liquid membrane.

Related Materials

ISOFLEX-PU 560 BT	Two-component, polyurethane - bituminous liquid membrane
PRIMER-PU 100	One-component polyurethane primer
PRIMER-PU 140	Two-component polyurethane primer for surfaces with high moisture content
DELTA-FLORAXX TOP	Drainage membrane
DUROCRET-PLUS	Polymer-modified, fiber-reinforced repairing cement mortar
SCREED-100	Cementitious floor screed
FLEX PU-30 S/FLEX PU-50 S	Polyurethane sealants

I. NATURE OF THE PROBLEM-REQUIREMENTS

When selecting the solution of green roofs, where the waterprooing layer is below the planting-drainage system, it is extremely important to ensure the sealing resistance to residual moisture which is trapped between the system and the waterproofing layer. Furthermore, the sealant should provide excellent adhesion to the substrate, flexibility, reliability and durability.

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II. SOLUTION

These requirements are fully covered by the two-component, polyurethane-bituminous brushable liquid membrane, **ISOFLEX-PU 560 BT**. The innovative composition of the two-component, polyurethane-bituminous liquid membrane ISOFLEX-PU 560 BT offers particular features, rendering it ideal for sealing in numerous applications.

It forms a uniform, waterproofing membrane without seams or joints that shows high elasticity and excellent mechanical and chemical resistance. It also shows very good adhesion to various surfaces, such as concrete, cement, bituminous coatings, steel surfaces, etc. Furthermore, it is easy to use with the mixing ratio of the two components being 1:1 (by volume).

III. APPLICATION

Substrate preparation

In general, the substrate must be dry and free from loose particles, dust, grease, etc.

Local restorations or repairs of the roof elements (concrete, cement mortar, etc.) can be carried out using **DUROCRET-PLUS** polymer-modified, fiber-reinforced, PCC R3 type cement mortar.

In case there is a need for filling or creating a universal inclination layer, the ready-to-use cementitious floor screed **SCREED-100** can be used.

Any substrate cracks must be sealed with polyurethane sealants **FLEX PU-30 S** or **FLEX PU-50 S.**

Priming of the surface with the polyurethane primer PRIMER-PU 100

On the clean dry concrete surface (moisture content <4%) - as long as the materials used for smoothing the substrate have dried - the one-component polyurethane primer **PRIMER-PU 100** is applied. The primer is evenly applied throughout the whole surface with a brush, roller or by spraying.

Consumption of PRIMER-PU 100 polyurethane primer: 200-300 g/m^2.

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/m^2.

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.

Application of ISOFLEX-PU 560 BT two-component, polyurethane-bituminous liquid membrane

The polyurethane-bituminous liquid membrane, **ISOFLEX-PU 560 BT**, is a two-component product. Components A (polyurethane resin) and B (bitumen) are packaged in separate containers. Mix equal volumes of the two components in a clean container. The two components are mixed for about 3 minutes with a low-speed mixer (300 rpm). It is important to stir the mixture thoroughly on the sides and bottom of the container.

ISOFLEX-PU 560 BT is applied by brush, roller or trowel 2-3 hours after application of the polyurethane primer PRIMER-PU 100, and as long as the surface is still slightly tacky.

Consumption: approx. 1.1-1.5 l/m^2, depending on the substrate.

Laying out the Geotextile

On the sealing layer of the polyurethane-bituminous liquid membrane ISOFLEX-PU 560 BT - as long as it is completely dry - a polypropylene nonwoven geotextile, weighing 125 g/m^2 is laid out, with the sheets of the geotextile overlapping by 10 cm. This layer is used in order to protect the substrate from injuries and better ventilate the system.

Application of DELTA-FLORAXX TOP type drainage membrane

Then, the multilayer drainage membrane **DELTA-FLORAXX TOP** made of high density polyethylene (HDPE), 0.6 mm thick, is placed/laid out. The membrane consists of octagonal dimples 20mm high, and adhered geotextile (filter) made of polypropylene, weighing 100 g/m^2. The material is certified with the CE marking, according to DIN EN 13252 standard (TBU Test reference 1.1/13525/0580.0.1-2009) and complies with the German FLL regulations for green roofs.

Other technical data:

- Compressive strength: 200 kN/m^2
- Air gap: 14 l/m^2
- Water storage capacity: 7 l/m^2
- Temperature resistance: -30^{o}C to +80^{o}C

The sheets of the drainage membrane can be connected together using special connectors and rivets included in the package.

In order to protect the above green roof system from materials entering while filling with soil, special strips of high density polyethylene are placed, mechanically fastened to the upper end of the drainage membrane. The soil and planting can be placed immediately after the installation of the drainage membrane of high density polyethylene, DELTA-FLORAXX TOP.

IV. NOTES

- Temperature during application and curing of the materials should be between +5^{o}C and +35^{o}C.
- The polymer-modified, fiber-reinforced, PCC R3 type cement mortar DUROCRET-PLUS is applied in layers of up to 2 cm in case of large surfaces, and in layers of up to 5 cm for spot repairs.
- Tools are cleaned with the special solvent for polyurethane paints SM-16**,** as long as ISOFLEX-PU 560 BT is still fresh.
- Consult the directions for safe use and precautions written on the package.
- ISOFLEX-PU 560 BT may be applied when the ambient temperature is 5^{o}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^{o}C. Low temperatures retard curing while high temperature accelerates curing. High values of humidity may affect the final finish of the membrane.

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