

Installation Guideline for Tensar Glasstex® Asphalt Interlayer

Scope

This Installation Guideline provides a step by step guide to Contractors installing Tensar Glasstex® asphalt interlayer supplied by Tensar International or any of its appointed distributors.

Tensar Glasstex is a composite asphalt interlayer product providing the combined functions of reinforcement, stress relief, and moisture barrier.

The product is composed of high tenacity glass yarn grid structure stitch bonded to a polypropylene paving fabric. The grid controls strains in the overlay by adhesion with the asphalt overlay providing a structural reinforcing effect. The fabric aids installation and provides, together with the bitumen absorbed from the bond coat, a stress relief effect and interlayer barrier against ingress of moisture and oxygen. The product functions (reinforcing, stress relief, interlayer barrier) are in accordance with EN 15381.

The user should evaluate the suitability of the product for any specific project prior to installation. Every step of the installation must be in accordance with general requirements and regulations for the construction.

Storage and transport

The rolls will be delivered to site wrapped in a polypropylene film. They must be transported carefully and stored in a dry and clean environment on even surfaces so that deformation of the rolls is avoided. The rolls should remain wrapped until use to protect the product from sunlight and water-ingress.

Preparation of the substrate surface

- Bound substrates of asphalt and concrete are suitable for the installation.
- Potholes, joints, cracks or voids must be filled beforehand with a suitable material.
- The surface must be even to ensure a continuous contact between Glasstex and the substrate.
- Finely milled substrates with a maximum rill depth $\leq 10\text{mm}$ (see Figure 1) are acceptable for the installation of the product.
- The surface must be clean, free of dust and debris, dry and be in accordance with the basic requirements for conventional asphalt paving.
- Uneven or coarsely milled surfaces must first be regulated or profiled with a suitable asphalt mix; the asphalt mix used for the regulating layer should be sufficiently dense to avoid absorption of the bond coat.
- The regulating layer (if newly laid) onto which the bond coat is applied must have been allowed to cool to ambient temperature.



Figure 1: Finely milled substrate

Bond Coat Application

- The bond coat (referred to in EN 13808 as the tack-coat) can either be hot-applied bitumen or a bitumen emulsion; cut-back bitumen products (i.e. bitumen mixed with a volatile liquid, e.g. kerosene) should be avoided and are not recommended for the installation of Tensar Glasstex. For hot-applied bitumen, the penetration grade can vary from 160/220 for moderate climates (e.g. UK) to suitable lower penetration grades in hotter climates. The minimum air temperature at the time of applying the hot bitumen should be $+5^{\circ}\text{C}$. Variances depending on site conditions should be agreed upon by the engineer and the installer of the product.
- For bitumen emulsions these should be suitable for surface dressing (treatments) and provide a bitumen solids content of $\geq 69\%$ (e.g. C 69 B3 according EN 13808). The minimum air temperature at the time of applying the bitumen emulsion should be $+10^{\circ}\text{C}$. Variances depending on site conditions should be agreed upon by the Engineer and the Installer of the product.
- The bond coat bitumen or emulsion proposed for the interlayer should first be approved by the Engineer.

- The bond coat should be sprayed mechanically onto the surface at a uniform rate (Figure 2). Small or localized areas can be sprayed by hand.
- Spray rates:
 - $\geq 1.1 \text{ kg/m}^2$ in case of hot bitumen;
 - In the case of bitumen emulsion, sufficient to deliver for $1.2\text{-}1.5 \text{ kg/m}^2$ of residual bitumen.

The quantity should be measured controlled and recorded. It may vary and needs to be adjusted according to surface conditions (for example porous surfaces require more bitumen). As a visual help on site to indicate that the spray rate may be correct, the bitumen film should provide a reflective mirror effect. Footsteps and vehicle tyres should leave a black print. Note that visual indicators do not replace the need for correctly calibrated spraying equipment and experienced staff on site ensuring the appropriate spray rate.



Figure 2: Bond coat application

- For overlaps, spray bond coat on top of the previously installed layer, for the width of the overlap only; avoid oversaturation.

Installation of Tensar Glasstex asphalt interlayer

1. The Glasstex® interlayer must be laid, with the glass grid upwards, immediately after the bond coat application.
2. If hand-laid, insert a steel bar through the roll core to assist with unwinding and to prevent bowing of the roll. Unroll the Glasstex interlayer onto the sprayed surface, applying light tension to the fabric and brushing to ensure that wrinkles are not formed (Figure 3). The product should be fully bonded by firm brushing with a stiff broom applying downward pressure working towards the roll edges.
3. The preferred method of installation is with a purpose-built interlayer installation machine (See Figure 4). This will incorporate brushes to ensure good adhesion without wrinkles. Tensar International or a local Tensar distributor can advise on the availability of this type of specialist equipment.



Figure 3: Manual installation – maintaining tension and brushing to prevent wrinkles



Figure 4 : Mechanical installation with purpose-built machine

4. Seams between adjacent rolls should be overlapped by a minimum of 150mm and bonded together. (Figures 5 and 6)
 - a. Use of excessive bonding coat should be avoided to prevent bleeding.
 - b. Once the adjacent roll has been installed the overlap zone must be manually stippled with a stiff broom to ensure that the two layers are fully bonded without voids.
 - c. After the bitumen has cured, the overlap should be checked to ensure that full bonding has occurred. Any un-bonded areas should be made good with additional bitumen and the area re-stippled.
 - d. The transverse overlaps between roll ends are



Figure 5 : Spraying with an overlap

formed in an identical way to the longitudinal overlaps.

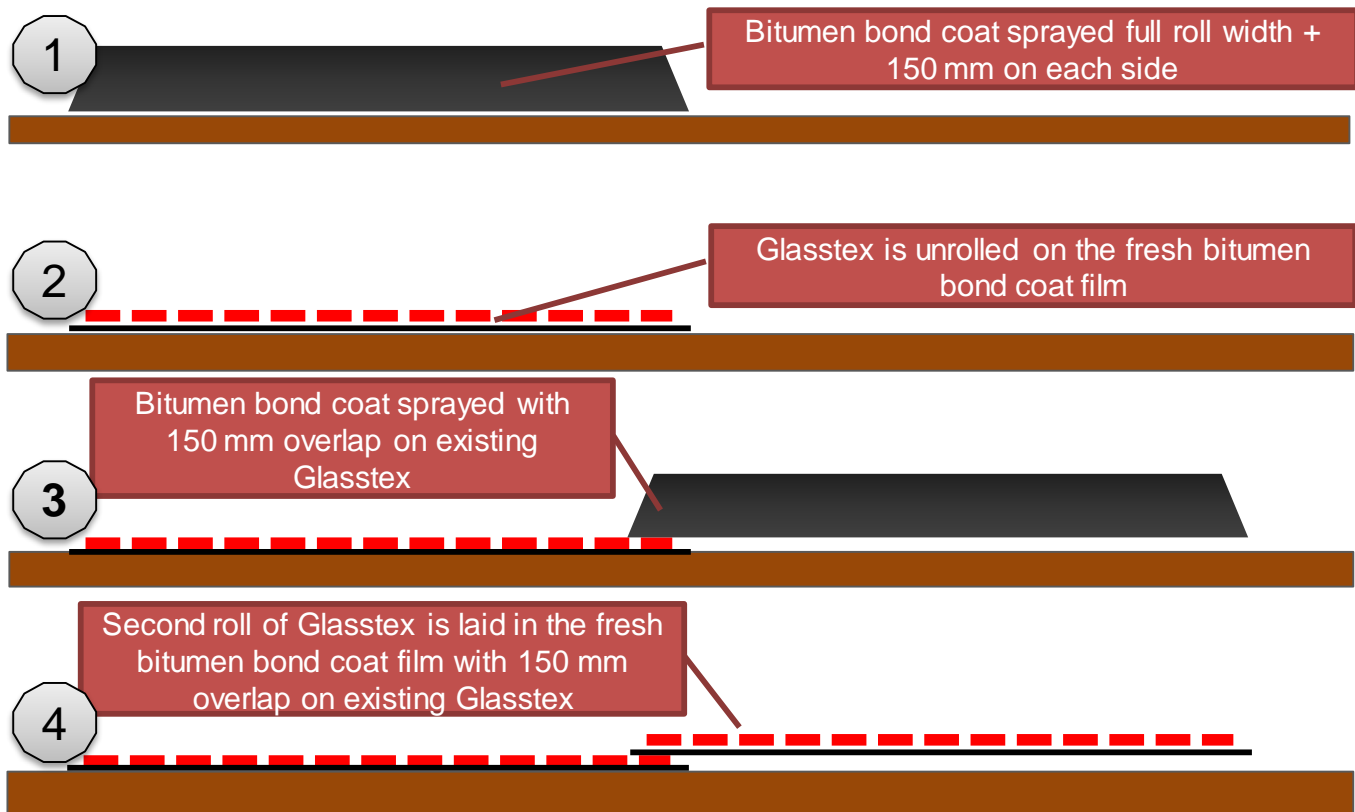


Figure 6 : Roll overlap procedure

Trafficking

Only essential paving traffic should be allowed onto the treated area prior to the paving operation. Manoeuvres on Glasstex interlayer by vehicles using power-steering should be kept to a minimum.

Asphalt Paving

Paving can commence as soon as the bitumen bond coat has fully cured and the Glasstex interlayer has been bonded completely to the pavement.

If the Glasstex interlayer surface becomes wet during the installation process it must be allowed to dry before paving commences. Slight dampness may be acceptable providing that the heat of the overlay is sufficient to cause the moisture to evaporate.

If the Glasstex interlayer is seen to move during paving, operations must stop and corrective measure taken to prevent this happening.

Conventional paving operations may be followed with a minimum rolled thickness of 40mm on top of the Glasstex interlayer. The temperature of the asphalt must not exceed 180°C, above which bitumen aging would jeopardize the durability of the surfacing course.

Quality control

It is recommended to calibrate the bond coat sprayer at the start of each new project and then once a day.

There are two visual clues on site to know if the spray rate is appropriate:

1. A 1 kg/m² bitumen film will be thick enough to have a mirror effect, (Figure 7).
2. Once Glasstex[®] is installed, footsteps and vehicle tyres should leave a black print (Figure 8)

Note that visual indicators do not replace the need for correctly calibrated spraying equipment and experienced staff on site ensuring the appropriate spray rate.



Figure 7 : Mirror effect of bond coat immediately after application

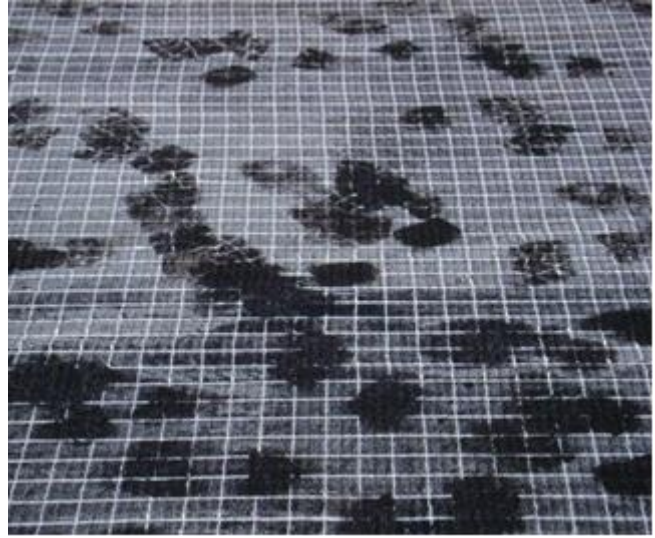


Figure 8 : Foot marks visible on Glasstex immediately after installation over bond coat

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