

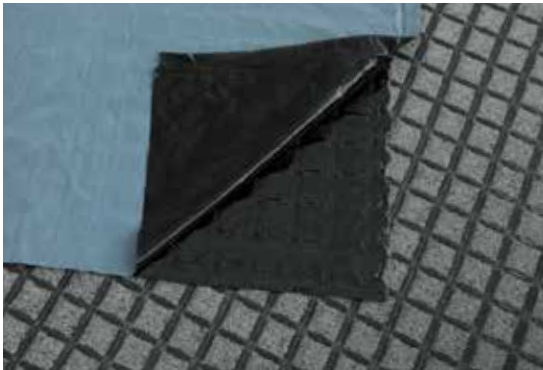


GlasGrid® Rapid Installation Procedures



The installation manual sets general recommendations for a successful installation of a ADFORS GlasGrid® Rapid. Specific project conditions should be reviewed with a technical representative of Saint-Gobain ADFORS who can provide expert assistance during installation.

ADFORS GlasGrid Rapid – Fiberglass reinforcement with modified polymer coating and bonded to a self-adhesive bitumen layer specifically engineered for asphalt overlays. **(Pic. 1)**



Pic. 1: ADFORS GlasGrid Rapid detail with protective film

Installation Follow-up

- Transport and Storage
- General Site Review
- Weather Considerations
- Installation
- Tack Coat
- Overlap and Custom Fitting
- Test for Proper Adhesion
- Boundary Conditions
- Paving
- Health & Important Issues
- Final Note

Transport and Storage

- Maintain storage of product in manufacturer’s original packaging until ready for installation.
- ADFORS GlasGrid Rapid must be stored in dry, dust, dirt free environment and kept such at the job site.
- Prevent material from coming into contact with debris, asphalt, vegetation or other deleterious materials.
- Store and transport at temperatures between minus 30 °C and 80 °C and with a maximum relative humidity of 85%.
- Pallets with product should be stored and transported on dry and flat surface.
- Stacking pallets with rolls of material, as well as individual unsecured rolls, on top of each other is not recommended. Product per-formance could be affected at contractor responsibility.

General Site Review

- Prior to the installation of ADFORS GlasGrid Rapid interlayer system, evaluate and complete repairs to the existing pavement.
- Existing pavement should show no signs of poor drainage, pump-ing of fines, excessive deflections or structural instability. Subgrade repairs shall be made to all areas where structurally instability is present.
- Potholes and cracks larger than 6 mm should be filled and compacted with appropriate material. Seal cracks between 3 mm and 6 mm with appropriate crack filler.
- The surface receiving the interlayer must be dry, dust-free mechanically cleaned by sweeping and vacuuming and be free of oil, vegetation, sand, dirt, water, gravel, and other contaminants prior to placement of interlayer reinforcing.
- Moisture and dirt will interfere with adhesion of the grid to the pavement surface. Therefore placement should not be under taken, if rain is likely to fall prior to covering the grid with an asp-halt mat overlay. Grid that is placed and will not adhere due to moisture or dirt shall be removed and replaced at the contractor’s expense.
- ADFORS GlasGrid Rapid can be installed on an old asphalt surface or evenly planned milled surface. **(Pic. 2, 3)**
- Milled surface max. limit “trough to crest” variance is ≤10 mm or apply levelling course prior to the installation ADFORS GlasGrid Rapid.
- Consultation with an ADFORS technical specialist is recom-mended for any undescribed application.



Pic. 2: ADFORS GlasGrid Rapid application for local repairs



Pic. 3: ADFORS GlasGrid Rapid installation and adhesive layer activation

Weather Considerations

- Local weather guidelines must be maintained for paving (e.g. temperature, precipitation).
- Pay attention when applying ADFORS GlasGrid Rapid at the the temperature range limits for laying asphalt layers. If necessary, consult a Saint-Gobain ADFORS technical specialist for installation.

Installation

- ADFORS GlasGrid Rapid must be installed by trained personnel. Tack coat is not essential for installation and fixation of geocomposite unless otherwise described in project, or recommended by Saint Gobain ADFORS technician.
- Commence placement of ADFORS GlasGrid Rapid only if previously described conditions are fulfilled.
- The surface receiving the reinforcement shall be between 5 °C and 60 °C. Fresh laid asphalt surface must harden with respect to the local paving guidelines. Is recommended to permit new paved asphalt surface to cool at least once to 43 °C.
- The reinforcement shall be installed with adhesive side facing down using sufficient pressure to eliminate ripples. Remove any ripples by pulling the grid tight. Cutting of the grid can be done on tight radii to prevent ripples.
- Unroll the reinforcement and remove the foil in one step (**Pic. 4**) or unroll, adjust, and then remove the foil from underneath (**Pic. 5-7**). Pay attention during foil removal, do not break the foil, and remove it completely.
- Press fabric into surface for proper adhesion and surface leveling (brooms or clean rubber tired rollers can be used). Sufficient pressure eliminates ripples.
- Cutting of the grid can be done on tight radii to prevent ripples.
- Full contact between the lower surface and grid must be ensured.
- Protect the asphalt reinforcing grid until placement of the finished asphalt topping. If installed interlayer is damaged due to not sufficient protection and traffic on site it needs to be removed and replaced at the contractor's expense.
- Place the asphaltic overlay course within 24 hours the interlayer reinforcing grid is placed.



Pic. 4: ADFORS GlasGrid Rapid instalation



Pic. 5 - 6 : First unroll and adjust



Pic. 7: Then take the foil off

Recommended longitudinal laying of Rapid strips

- Area-wide application
- Shoulder reinforcement
- Lane widening
- Overlapping of longitudinal cracks



Pic. 8: Shoulder reinforcement



Pic. 9: Lane widening reinforcement

■ Recommended cross-laying of Rapid strips

- Overlapping transverse expansion joints of cement concrete slabs
- Local overlaps at excavation sites
- Overlaying small area transverse thermal or reflective cracks



Pic. 10 & 11: Overlaps of reflective cracks

■ Recommended combined Rapid strip laying

- Cement concrete slab joints
- Shoulder reinforcement & local cracks
- Longitudinal & transverse cracking



Pic. 12: Longitudinal & transverse cracking



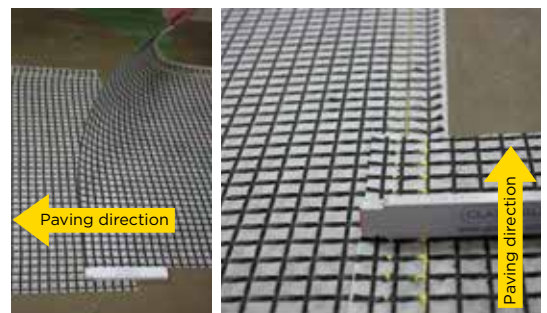
Pic. 13: Cement concrete joints

■ Tack Coat

- ADFORS GlasGrid Rapid is composite product made from fiberglass reinforcement and especially design self-adhesive polymer-bitumen layer. Polymer-bitumen has also function as substitute for tack coat.
- The manufacturer recommends applying ADFORS GlasGrid Rapid without the use of a tack coat to fix the material to the surface. If the project specification requires the use of a bonding spray or if the reinforcement system is applied below the wearing course, it is recommended that a bonding spray with a minimum asphalt content of 60% be applied to the surface of the installed ADFORS GlasGrid Rapid at a rate of 0.20 - 0.35 kg/m².
- Tack coat must be completely cured before paving.

■ Overlap and Custom Fitting

- ADFORS GlasGrid Rapid must be applied without ripples. Sufficient tension during application will eliminate this problem.
- Overlap at end of end roll joints 50-100 mm. Ensure that the overlaps are shingled in the direction of paving. **(Pic. 14)**
- It is not advisable to overlap the grid more than once in the same place, i.e. max. two layers of geogrid in the smallest possible area.
- The recommended longitudinal overlap is 50 mm **(Pic. 15)**. If the reinforcement system is applied under the wearing course, lay the strips lengthwise so that they do not overlap but are continuous and there is no gap between them.
- ADFORS GlasGrid Rapid can be custom cut to fit around structures by using a sharp utility knife or other similar tool. Reinforcement laid out and rolled over ironworks (i.e., manhole covers, drainage grates, etc.) shall be removed in such an areas by cutting the reinforcement grid.
- ADFORS GlasGrid Rapid does not bend or stretch around curves. Shortened lengths should be placed in these areas.
- Overlapping areas shall be arranged that areas do not coincide with paving lanes, cracks, joints or seams in the base. Overlapping area should be kept in minimum distance $\geq 0,5m$.



Pic. 14: End of joints **Pic. 15:** Longitudinal joints

■ Test for Proper Adhesion

- Cut 1 m² of ADFORS GlasGrid Rapid.
- Place the grid on area that is representative of the project condition.
- Insert hook of calibrated spring balance under center of ADFORS GlasGrid Rapid. **(Pic. 16)**
- Pull upward until ADFORS GlasGrid Rapid starts to pull away from the surface.
- If result is 9 kg or more it is OK to pave. If less than 9 kg do not continue installation ADFORS GlasGrid Rapid without corrective action to address this issue.
- Consult the manufacturer if grid does not meet this pull rating and do place asphalt topping until an acceptable adhesion is achieved.
- If bond is not achieved then determination of the cause is required. This is typically due to contamination on the smooth surface, in the form of either water or debris.
- Provide a minimum of one test per 300 m² of surface area and record result in kg.



Pic. 16: Adhesion pull out test

■ Boundary Conditions

- Prior to paving, only construction and emergency vehicles should be allowed to drive on installed ADFORS GlasGrid Rapid and with max. speed up to 20 km/h.
- Vehicles should limit turning and breaking on installed ADFORS GlasGrid Rapid.
- To reduce the crack stresses distribution over individual cracks and distresses installation width has to be kept $\geq 1,0$ m (minimum 0,5 m each side from the crack).
- Extra care should be taken when paving at either end of the temperature range. Especially in warm summer periods can reduce the adhesion of the truck wheels on the reinforcement by local application of hot asphalt mix (of the same type used during paving) on critical areas in proximity before the finisher advances.



Pic. 17: HMA application over ADFORS GlasGrid Rapid

■ Paving

- Hard breaking and/or locking up of the trucks wheels on the grid shall be prohibited to not damage installed grid during the truck move and dispensing mix into the paver.
- Once ADFORS GlasGrid Rapid is fully secured it is recommended to pave within 24 hours with HMA $\geq 130^{\circ}\text{C}$.
- Installed ADFORS GlasGrid Rapid system shall be covered by hot asphalt layer with minimum width after compaction 40mm generally recommended is minimum width 50mm overlay after compaction. **(Pic. 17,18).**
- Paving in high slopes, tight curves and in areas with high shear forces applied to the pavement structure are generally considered as critical.
- Stop paving immediately if ADFORS GlasGrid Rapid moves or ripples.



Pic. 18: HMA application over ADFORS GlasGrid Rapid

■ Health & Important Issues

- Because fiberglass is considered as a skin irritant, workers should wear protective clothes, gloves and glasses while handling ADFORS GlasGrid Rapid.

■ Final Note

- The installation of any asphalt reinforcement interlayer shall follow the local regulations for asphalt road construction.
- This guideline outlines recommendations for a quality installation and is based on familiarity with the product, and the consolidation of decades of project site experiences.
- If you have any questions or unique installation parameters, do not hesitate to contact us.
- Warranty claims cannot be based and forced on present information in this guideline. Each project should be consulted with a Saint-Gobain ADFORS technical specialist.
- In as much as Saint-Gobain ADFORS has no control over installation design, installation workmanship, accessory materials, or conditions of application, Saint-Gobain ADFORS does not warrant the performance or results of any installation or use of GlasGrid. This warranty disclaimer includes all implied warranties, statutory or otherwise, including the warranty of merchantability and of fitness for a particular purpose. The purchaser and/or user should perform its own tests to determine the suitability and fitness of the product for the particular purpose desired in any given situation.



APLICACION VIDEO



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ADFORS GlasGrid® is manufactured at an ISO 9001:2008, EN15381:2008 registered facility of Saint-Gobain ADFORS.

ADFORS GlasGrid® is a registered trademark of SAINT-GOBAIN ADFORS. U.S. Patent 8,038,364; 8,349,431 and 8,882,385. Additional patents pending.

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