



TITAN

BUILD YOUR LEGEND

Installation Guide

Geogrid

For Asphalt Reinforcement

Spartan Road Grid™
Fiberglass Geogrid

INSTALLATION GUIDE

SPARTAN ROAD GRID™ FIBERGLASS GEOGRID

Storage Information:

- Store at temperatures above - 29 °C (- 20 °F).
- Storage location should be dry, preferably covered and free of dust, dirt and moisture.
- Do not allow excessive mud, fluid concrete, asphalt, or other deleterious materials to get in contact with the reinforcement mesh materials.
- If stored outdoors, the rolls must be covered with proper water proof covering.
- Store rolls upright on end.
- Rolls remain in wrapping until use.



Surface Preparation:

- Pavement should be clean, **dry**, and clear of all dust, dirt, and debris. It is recommended that a sweeper should pass over the road surface multiple times to ensure sufficient debris has been removed.
- Road surface temperature should typically be between 5 °C (40 °F) and 60 °C (140 °F) and between 5 °C (40 °F) and 46 °C (110 °F) if the asphalt surface is less than 24 hours old.
- Seal cracks exceeding 6 mm (0.25") in width using an approved sealant or the appropriate leveling course mix.
- Repair potholes and failed or cracked sections of pavements as instructed by the engineer.
- Badly damaged or rough pavement may require milling or the placement of a leveling course.



Leveling Course Application:

- A minimum 0.75 in (19 mm) thick asphalt concrete leveling course is required on milled surfaces or Portland Concrete pavements to provide sufficient adhesion.

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Installation Snapshot:

1. Apply base asphalt layer/ leveling course with a minimum of 19-20mm thickness.
2. Place Spartan Road grid™ under tension with self-adhesive side down on the levelling course, in dry conditions **without the application of tack-coat**.
3. Provide a 3" overlap for transverse joints and 2" for longitudinal joints.
4. Roll the surface of the geogrid with a rubber-coated drum roller.
5. Spray an evenly distributed tack-coat (@ 0.50 litres/sqm) over the laid geogrid area.
6. Allow the tack-coat to cure.
7. Pave a minimum thickness of 40-50mm of asphalt over the geogrid in one lift.

Installation Guidelines:

SAFETY PRECAUTION:

It is recommended that workers wear gloves and safety glasses while handling fiberglass geogrid.

IMPORTANT

- Ensure that the surface is clean and clear of all dust, dirt, and debris.
- Ensure that the surface is level so that the geogrid can make solid contact with the base course.
- Ensure that ALL surface preparation instructions have been completed as detailed.
- Ensure that Spartan Road Grid™ is placed with the self-adhesive side DOWN.
- **DO NOT** place Spartan Road Grid™ on the surface when wet, or contaminated with oil, soil, or excessive dust.
- **DO NOT** place Spartan Road Grid™ directly over a milled surface.
- **DO NOT** place asphalt during wet or freezing weather that prevents conformance with specified requirements.



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Placement:

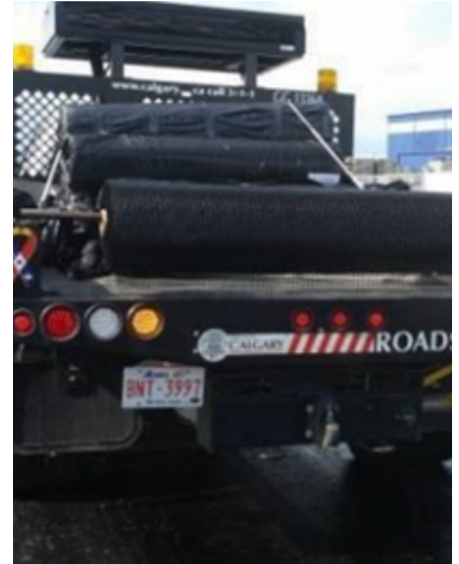
There are two primary ways that Titan Fiberglass Grid can be placed on an asphalt surface:

Mechanical ** Highly Recommended**

- Using a pickup truck or trailer - that has been modified so the geogrid can be mounted on the back.

Manual

- Physically placing by hand.
- Used for localized areas of road.
 1. Ensure that the geogrid's leading edge is aggressively fastened to the road so that sufficient tension can be applied to the fiberglass geogrid.
 2. Roll out the entire length of the geogrid and tension from the end of the roll. Tension should be continually applied until the remaining area of geogrid can be fastened to the road.
 3. Overlap transverse joints by 75-150 mm (3-6") in the direction of the paver and overlap longitudinal joints by 25-50 mm (1-2").
 4. The surface of the fiberglass geogrid may be rolled with a rubber-coated drum roller or a pneumatic tire roller with one or two passes to facilitate bonding.



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Placement Cont'd:

5. Traffic should be kept to a minimum while the grid is exposed. If travel on the geogrid is necessary, it should be kept below **5 MPH** with no sudden stopping or starting.

- Static front wheel turning should be kept to an absolute minimum.
- Any sections damaged by construction traffic must be removed and patched prior to paving.
- Geogrid must be kept free of mud, dust, and other debris during construction.

Wrinkle Removal:

- Wrinkles and wrap-ins during fiberglass geogrid installation need to be removed. To avoid them ensure that the geogrid is installed under sufficient tension.
- Caution should be taken to ensure that all wrinkles are removed before paving. To remove:
 1. Cut the middle of the wrinkle.
 2. Lay it back on itself to minimize the amount of differential height in the grid during paving.
 3. Aggressively fasten the repair area to eliminate lifting or movement of the grid in that location.



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Tack Coat Application:

- The use of a tack coat further enhances adhesion and bonding between the fiberglass grid and asphalt layers. The fiberglass grid should be placed with the self-adhesive side down over the levelling course prior to tack coat application.
- Tack coat is used to promote a strong bond between the existing pavement layer, the fiberglass geogrid, and the new overlay. A proper tack coat prevents delamination/de-bonding, and enhances structural performance.
- Tack coat needs to be applied uniformly over the fiberglass geogrid at a rate of **0.4-0.6 kg/m² / 0.39-0.59 liters/m² (0.10-0.15 gal/yd²)** using a calibrated distributor truck, ensuring that the application rate remains constant.
- It is recommended that only asphalt cement tack coats are used. The best results are obtained when the same asphalt cement that was used to make the HMA mix is used as the tack.
- Performance Grade binder (PG-64 or equivalent) is strongly recommended and provides very good results when applied. More care and consideration are required when using emulsified tack coats such as SS-1, or SS-1h.
- The emulsified tack coats need careful consideration in relation to curing times before the paving operation commences.
- Other types of tack coat require pre-approval by a manufacturer's representative.
- The width of the tack coat application must extend 75 mm (3") beyond the Titan fiberglass geogrid on all sides.



Tack Coat Application - Correct Installation Method

Uniform Distribution of Tack Coat

- Uniform distribution of the tack coat is observed. No gaps in the tack coat can be seen.
- If the distributor truck cannot apply the tack coat in a homogenous manner, then proper cleaning of the distributor truck is required.
- It is recommended that a vertical distance of the sprayer bar is approximately 305mm (12") above the pavement.

Allow Tack Coat to Break

- Allow sufficient time for the tack coat to break before paving can begin.
- Tack coat should turn from a brown color to a black color.
- This process is very important and requires the utmost patience. Curing of the tack coat may take anywhere between 1-3 hours (depending on the ambient temperature, surface temperature, humidity, etc.).



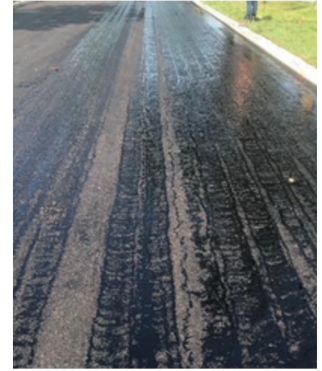
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Tack Coat Application – Incorrect Installation Methods

Nonuniform Distribution of Tack Coat

- An unacceptable installation is observed when gaps in the tack coat are present.
- If the distributor truck cannot apply the tack coat in a homogenous manner, then proper cleaning of the distributor truck is required.
- Areas of insufficient or non-uniform prime, tack, and joint coating coverage shall be reappplied by the contractor.



Tack Coat Was Not Allowed to Break

- Insufficient time for the tack coat to break did not occur. Tack coat is still brownish in color.



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Hot Mix Overlay:

- If a tack coat is specified, apply tack coat and allow it to cure before paving.
- The recommended asphalt overlay thickness is a minimum of 40 mm (1.5") thick once compacted.
- The paving should be done on the same day the Spartan Road Grid™ fiberglass grid is installed.



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Adhesion Testing:

- To determine if there is adequate adhesion between Spartan Road Grid™ fiberglass grid and the underlying asphalt:
 1. Cut a square-shaped sample measuring approx. 1 m² or 1 yd² of the Spartan Road Grid™ fiberglass geogrid material.
 2. Place the test sample on the road surface to be paved and under the same conditions.
 3. Apply sufficient pressure vertically by some proper means (e.g., by use of a rubber-tired roller) to activate the pressure-sensitive adhesive.
 4. Insert the hook of a spring balance under the center of the Spartan Road Grid™ fiberglass geogrid test sample.
 5. Pull the spring balance steadily upward until the test sample starts to pull loose and record the gauge reading.
 6. In the case where 20 lbs. (9.07 kg) or more force is required to pull the test sample up from the road surface, adequate adhesion has been achieved for the paving operation. The placement of Spartan Road Grid™ fiberglass grid placement may proceed.
 7. In the case where adequate adhesion is not achieved, identify various possible issues such as cleanliness, moisture issues, etc., and resolve those before installing the rest of the Spartan Road Grid™ fiberglass geogrids.



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