



INSTALLATION INSTRUCTIONS GEOTAC & GEOTACHS

March 2018

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READ BEFORE USING THIS PRODUCT

GENERAL: GeoTac and GeoTac HS are peel-and-stick waterproofing membranes supplied in rolls that are used in paving, bridge decks, structural, underground and other construction applications where durable positive side moisture barriers are required. These products are composed of a layer of specially designed polymer modified asphalt waterproofing membrane adhesive applied to fabric backings. GeoTac has a non-woven polypropylene fabric backing and GeoTac HS has a high strength woven polyester backing. To use, these products are removed from the box and unrolled onto prepared surfaces while removing the release liner, and then pressure rolled to ensure contact and adhesion.

PRODUCT SELECTION: GeoTac is a general purpose waterproofing membrane, which also provides flexible reinforcement that is used for many paving applications, especially for cracks and joints in both asphalt and concrete pavements, and bridge deck waterproofing prior to placement of asphalt concrete overlays at temperatures up to 300°F (149°C). GeoTac HS is a higher strength product with increased puncture, tear and temperature resistance (overlay temperature can range up to 350°F (177°C)), that is also used for waterproofing pavement cracks, joints and bridge deck waterproofing where increased strength is desired. These products are supplied in several widths, ranging from 12" (0.3m) to 48" (1.2m), as listed on the Product Data Sheets. Guidelines for width selection follow:

<u>WIDTH</u>	<u>TYPICAL USES</u>
12" (0.3m)	Longitudinal, straight PCC joints which are not deteriorated, as supplemental reinforcing strip at edges, corners, cracks and other discontinuities.
18" (0.46m) & 24" (0.6m)	Most cracks and joints in both PCC and asphalt concrete surfaces, cold joints, edge joints, repaired areas, in surfaces with minor spalling deterioration. Maximum crack, joint, or repaired area width should not exceed 1 inch (2.5 cm) for 18 inch (0.46m) wide product, or 6 inch (15 cm) for 24 inch (0.6m) wide product.
36" (0.9m) & 48" (1.2m)	Larger repaired or deteriorated pavement areas, utility cuts, etc, up to 18 inches (0.46m) wide for 36 in(0.9m)wide product and up to 30 inch (0.76m) wide for 48 inch wide product. These are also the standard widths used for bridge deck or parking deck surface waterproofing.

In addition to the above requirements when used to reinforce cracks, joints, or repaired areas, the selected width shall allow the material to extend a minimum of 9" (23 cm) beyond the area to be repaired. One exception is for longitudinal PCC joints that do not exhibit signs of spalling or edge deterioration as stated above, where 6 inch (15 cm) is acceptable.

SURFACE PREPARATION PROCEDURES: For best performance, these products must only be applied to surfaces that are clean, thoroughly dry with no lingering moisture at cracks, free of contaminants, stable, relatively smooth and which have had defects repaired or treated. Surfaces are to be structurally sound and stable and not experience excessive differential vertical movement from loadings. Obvious areas of excessive deflection such as potholes, depressed alligator cracked areas, faulted joints, subsided slabs, should be repaired and stabilized to provide a stable surface prior to use of these products. The surface should be sufficiently level or plane without protrusions or depressions, so that the membrane will be in complete contact with the surface.

Cleaning: The surface shall be swept or blown with clean moisture and oil free compressed air to remove dirt, dust, vegetation or other debris. Areas not adequately cleaned with sweeping or air may require scraping with shovels or other hand tools, followed by compressed air blowing. Surfaces with bonded accumulations may require more intensive cleaning procedures such as high pressure water blasting, wire brushing or abrasive cleaning. The cleaning procedure is to result in surfaces which are dry and free from dust, dirt or other contaminants. Additional cleaning procedures for several surfaces follow:

Portland Cement Concrete Surfaces – New Portland cement concrete pavements and structures usually are treated with curing agents and may be contaminated with form release oils. Curing compounds used should not contain silicone, oil or wax bases, as membrane adhesion may be affected. Form release agents should be a self-dissipating type. New PCC must be cured for at least 7 days prior to membrane installation. Abrasive cleaning or high pressure water blasting may be required for PCC to remove curing agents or form release compounds.

Wood Decks – Wood decks are commonly treated with preservatives, which may even accumulate on the surface. Excess preservative is to be removed by scraping and cleaning with solvent such as mineral spirits. Wood decks must be cleaned down to the wood surface. Some preservative types may not be compatible with the membrane adhesive and may result in softening or adhesion loss.

Milled Asphalt Concrete Surfaces – Milled asphalt concrete surfaces are highly textured and may have difficult to remove embedded fines and dust in the surface. Cleaning should use high pressure compressed air. If the surface texture contains vertical surfaces or the texture is over 1/4" (6mm) deep, a leveling course should be used prior to membrane installation. Milled surfaces must be primed prior to installation of the membrane.

Repair of Cracks, Joints & Other Distresses: Crack and joints in asphalt and Portland cement concrete surfaces that are between 1/4" (6mm) and 2" (50mm) wide shall be cleaned and sealed with an approved hot applied or chemically curing sealant suitable for use in the project climatic area. Emulsified or cutback sealants or fillers should not be used due to membrane softening that may occur. Sealant shall be applied flush with the surface, or slightly recessed, with no excesses on the pavement surface. Follow manufacturer and agency instructions for installation. Cracks over 2" (50mm) wide, or other voids, such as potholes, spalled areas, severely fatigued (alligatored) cracked areas, shall be cleaned of loose pavement or debris and patched with approved materials including Crafcro PolyPatch, Mastic 1, TechCrete, a compacted 3/8" (1cm) maximum sized hot mixed asphalt concrete, or a quality cold applied patching material. Note that solvent containing products must be allowed to fully cure prior to membrane placement, or adhesive loss, softening and blistering may occur as solvent evaporates. Vertical elevation differences greater than 3/8" (1 cm) shall be ground or milled smooth or wedged with an approved patching material or sealant product.

Priming: For many installations, primer use is not required for these products, but is required in several situations. Primer application improves membrane adhesion during cooler application conditions and when surface conditions are not optimal. Primer is required when applying these products when surface temperature is less than 70°F (21°C), on all bridge deck installations (except for asphalt concrete or leveling course surfaces that are less than one year old), on all milled asphalt concrete surfaces, and when surface cleanliness conditions are less than optimal. Recommended primer is Crafcro Asphalt Primer (Part No. 33140) or equivalent. Crafcro PCF-100 and several other types of materials may be used as primers in certain applications. Contact Crafcro for additional information.

Crafcro Asphalt Primer is to be applied by brush, roller or spray at an application rate of between approximately 200 to 400 ft²/gallon (0.025 to 0.05 gsy). Application rate will depend on surface condition, porosity and texture. Application should result in a completely wetted surface without puddling. Primer must completely cure prior to membrane installation. Curing time required depends on weather conditions, including temperature, cloud cover, wind and humidity. At 70°F (21°C) on a sunny day curing will generally take from 30 minutes to 2 hours. At temperatures below 55°F (13°C) primer should be allowed to cure for at least 16 hours or overnight. Minimum temperature for primer applications is 45°F (7°C). Primer is cured sufficiently when it reaches a tacky condition when touched with no transfer to one's finger. All areas of the primed surface must reach this state of curing prior to membrane application. Membrane should be applied the same day as when the primer becomes fully cured. If membrane is not applied that day, the surfaces should be re-primed. Crafcro PCF-100, which is a hot applied polymer modified asphalt material, may also be used as a primer when it is not desirable to wait for the solvent base types to fully cure. PCF-100 should be applied at a rate of 0.10 – 0.15 gsy (60 – 90 ft²/gal). Membrane can be applied as soon as the PCF-100 has cooled. Other primer types will have different application rates, methods and curing requirements. For other approved primers, contact Crafcro, Inc.

MEMBRANE INSTALLATION:

Weather and Temperature: The minimum surface temperature for installation of GeoTac or GeoTac HS is 45°F (7°C). Note that at temperatures between 45°F (7°C) and 70°F (21°C), use of primer is required to improve adhesion for all installations. During installation, weather must be dry, with no rain, drizzle or fog. Additionally, installation should not occur at temperatures less than the dew point due to the possibility of surface moisture.

Membrane Placement: These products are to only be applied to surfaces that are clean, dry, prepared and primed (if required) as indicated in the Surface Preparation Procedures section. Do not remove any of the release liner until just before placement of the membrane. For horizontal surfaces, remove approximately 3 ft (1 m) of the release liner and then place the membrane with the black, tacky side down onto the surface. Once positioned, it may be difficult to remove and readjust. Then, unroll the membrane while removing the release liner. Application trolleys which assist with unrolling are available. During installation and unrolling, the membrane should be kept in slight tension. The membrane is to be laid straight, smooth and wrinkle free.

Pavement Cracks, Joints or Other Repairs – Membrane of the appropriate width is to be installed centered over the crack or joint with a minimum of 9" (23 cm) of membrane on each side of the crack or joint, except for longitudinal joints in PCC pavements where 6" (15 cm) is the minimum on each side. If primer is required it should be applied approximately 1" (2.5 cm) beyond each side of the membrane. Overlaps are to be 2 – 5" (5 – 13 cm) installed in the direction of paving and to shed water. Where transverse and longitudinal strips meet, they may be butted or overlapped. If overlapped, transverse are to be placed first and longitudinal on top. Sealing of the edge of overlaps is recommended, especially if the application will be exposed to traffic prior to the overlay. Recommended sealing material is Crafcro PCF-100 or other approved hot -applied polymeric sealant. Application temperature for hot-applied sealing mastic shall be 320-350°F (160-177°C) for GeoTac, and 320-375°F (160-191°C) for GeoTac HS. If the maximum temperatures are exceeded, membrane shrinkage and curling may occur. Approved cold applied asphaltic mastics may also be used. Contact Crafcro for more information.. Sealing should consist of applying approximately 1-2" (2.5 - 5 cm) wide layer of sealant or mastic, centered at the edge of the overlap and approximately 1/16– 1/8" (1.5 – 3 mm) thick.

Bridge Deck or Other Horizontal Surfaces Prior to Overlays – All bridge deck surfaces including Portland cement concrete, asphalt concrete or wood (except for asphalt concrete or leveling course surfaces that are less than one year old), shall be primed prior to membrane installation. Waterproofing membranes are commonly installed in several manners for different deck surface designs. Typical membrane installations include installing to the edge of the surface, tucking tightly into the corner and bonded to the vertical curb surface to the overlay level, or installing with a supplemental edge reinforcing strip at the corner. The waterproofing membrane installation must extend vertically to the desired level of waterproofing. The membrane installation must not cross working joints in the deck surface. Membrane installation is to start at the low side and proceed to the high side so that laps shed water. Laps are to be 2 to 5" (5 to 13 cm). For Geotac and most Geotac HS installations on bridge decks, all laps, exposed edges, terminations, joints or other discontinuities in the membrane are to be sealed with Crafcro PCF-100 sealant (installed at the correct temperatures listed in the previous section), or other approved sealing mastic. Contact Crafcro for additional information. Sealing should consist of applying a 1 - 2" (2.5- 5 cm) wide layer of sealant or mastic, centered at the edge of the overlap and approximately 1/16 – 1/8" (1.5 - 3 mm) thick. For Geotac HS installations that will not be exposed to traffic prior to installation of the overlay, sealing of laps, exposed edges, terminations, joints, or other discontinuities is not required, as long as all other aspects of these instructions are followed.

Penetrations, Drains, Manholes and Protrusions – At penetrations in the surface, such as drains, manholes, gutters, wide expansion joints, etc, place the membrane over the opening, then carefully and neatly cut to remove membrane material from the opening to the edge of the opening. Seal all edges with PCF-100 (installed at correct temperatures listed above) or other approved mastic. Edge reinforcing strips 12" (30 cm) wide can also be used to provide additional reinforcement at edges. At protrusions, above the membrane, cut membrane strips to place around the protrusions to the desired level and also around the corners and extending onto the surface that the protrusion penetrates. The reinforcing should extend at least 6" (15 cm) from the protrusion in all directions. Full membrane surface is then applied, up to the protrusion, with edges sealed with mastic.

Membrane Rolling: After applying to the surface, the membrane is to be pressure rolled to establish a tight and full continuous bond with the underlying surface. For pavements and bridge decks, pneumatic rollers are recommended, but static steel wheel rollers can also be used. Rolling should consist of at least 3 passes. For milled surfaces, pneumatic rollers are required so that full surface contact is established. Rolling shall be sufficient to establish complete adhesion of the membrane product to the surface.

Installation Inspection and Repair: Following rolling, the installation is to be inspected for defects and repaired if required. Blisters should be punctured to allow air to escape, then pressed into place. Minor wrinkles less than 3/8" (1 cm) can be slit and re-adhered. Small punctures, slits, etc can be covered with sealing mastic. Larger areas of damaged membrane should be removed and patched with additional membrane with edges sealed with mastic. All joints and edges should be inspected for adhesion and sealing. If deficiencies are noted, they are to be corrected before proceeding with additional construction.

Traffic: After installation on pavement or bridge deck surfaces, GeoTac and GeoTac HS can be immediately paved over. At times, it may be necessary for the pavement to be opened to traffic prior to overly construction. GeoTac and GeoTac HS are resistant to traffic for temporary short time periods, preferably less than 24 hours, but can be up to 7 days. **CAUTION: GeoTac and GeoTac HS are more slippery than pavement especially when wet. Precautions must be taken to limit the skid resistance hazards such as reducing speed and providing signage warnings.** At areas with more severe traffic loadings, such as turning, braking and high slopes of over 5%, traffic exposure should be less than 24 hours. After the surface has been exposed to traffic, it must be inspected for damage and repaired if necessary prior to paving.

PAVING WITH HOT-MIX ASPHALT CONCRETE: Paving can occur immediately over GeoTac and GeoTac HS membranes. Following installation, the membranes may be exposed to rain without damage, but they must be dry prior to paving. Minimum compacted asphalt concrete thickness is 1.5 in. (3.8 cm). The first 1.5 in (3.8cm) thickness of the overlay shall be applied in a single lift. The asphalt concrete mixture type used shall be hot-mix asphalt concrete as specified by the highway agency. Note that in some cases with thin overlays, and strip installations on transverse cracks, a slight shadowing effect may occur. To reduce shadowing, use a thicker overlay, or a thin surface course over the first 1.5 inch (3.8 cm) lift.

Tack Coat: A tack coat must be applied on the membrane prior to paving. Recommended tack coat application rate is 0.10 to 0.12 gsy (residual) of paving grade asphalt cement or standard emulsified asphalt tack coat. Cutback tack coats are not permitted as they may soften the membrane.

Placing Hot-Mix Asphalt Concrete: The hot-mix asphalt concrete is placed using standard procedures with the following exceptions: Windrow paving that places hot windrows of asphalt concrete mix on top of the membrane must not be used. Screed burners should be turned off as the close heat may damage the membrane. Laydown should proceed smoothly and uniformly to minimize starting and stopping which may damage the membrane. Mix should be placed from low to high points. When paving over GeoTac, the hot-mix asphalt concrete mixture laydown temperature shall not be less than 280°F (138°C) or exceed 300°F (149°C), and with GeoTac HS maximum temperature is 350°F (177°C).

Use of Warm-Mix Asphalt Concrete: Warm mix asphalt concrete can be used to pave over GeoTac membranes, if the laydown temperature exceeds 250°F (121°C) and the lift thickness exceeds 1.5 in. (3.8cm). The minimum mix laydown temperature and minimum thickness placed in a single lift, are required to assure adequate bonding to the underlying pavement to the GeoTac and to the overlay. Warm mix types of asphalt concrete that do not meet the minimum 250°F (121°C) laydown temperature shall not be used. (Refer to Asphalt Interlayer Association Guidelines for use of warm mix asphalt concrete).

Compaction: Use of dual drive rollers is recommended. Compaction should occur using standard procedures, except that when using vibratory rollers, amplitude should be set low and frequency high. Mix shoving may occur during compaction in rare cases with some mixes due to the varying surface characteristics of the pavement and the membrane. If shoving occurs, slowing the rolling speed, using dual drive or pneumatic rollers or lowering laydown and compaction temperatures may reduce the effect.

STORAGE: GeoTac and GeoTac HS must be protected from and not be exposed to moisture and rain during shipping and prior to installation. The plastic wrap on the pallets does not protect the product from moisture. Product which has been exposed to moisture may not adhere adequately. Any material that becomes wet prior to installation shall be removed from the jobsite and discarded. Storage temperature shall not exceed 120°F (49°C). During storage, the plastic release liner may change color due to being in contact with the asphalt adhesive. This change is normal and does not adversely affect the product.

SAFETY PRECAUTIONS: Prior to use, the user must read the product Safety Data Sheet. Installation requires use of cutting tools, rollers and other equipment and workers may be in traffic areas or on elevated or below grade surfaces. Adequate safety precautions and traffic control measures are to be taken to protect workers during the installation process. Primers, if used, may contain combustible or flammable solvents. Adequate fire protection measures are to be taken during primer installation as specified in the primer SDS.

ADDITIONAL INFORMATION: For additional information, refer to Product Data Sheets and Safety Data Sheets for these products or contact Crafc0, Inc. at www.crafc0.com.