



420 N. Roosevelt Ave. • Chandler AZ 85226  
1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513  
www.crafco.com

## INSTALLATION INSTRUCTIONS

### BRIDGE DECK WATERPROOFING WITH GEOTAC, GEOTAC HS, PAVEPREP SA, and PAVEPREP TSA

FEBRUARY 2008

#### READ BEFORE USING THIS PRODUCT

**GENERAL:** Crafco GeoTac, GeoTac HS, PavePrep SA, and PavePrep TSA are peel-and-stick self-adhesive waterproofing membranes supplied in rolls that are used for waterproofing bridge decks and other paved or structural surfaces before placement of hot mix asphalt concrete wearing surfaces. These products are composed of a layer of specially designed polymer modified asphalt waterproofing membrane adhesive applied to fabric backings. When properly installed, these products provide effective, durable waterproofing for many types of bridge decks, parking decks, parking garages, or other surfaces. These products are supplied in rolls. To install, the deck surface is first prepared and then primed. Membrane installation consists of unrolling the membrane while removing the release liner, pressure rolling to secure in place, and then sealing at the edges of the installation. An asphalt concrete overlay is then installed as the wearing surface.

#### **PRODUCT DESCRIPTION and SELECTION:**

**GeoTac** is an effective waterproofing membrane that is a minimum thickness of 0.065 inch (1.65mm) and is composed of a layer of self-adhesive polymer modified asphalt waterproofing adhesive (with a release liner) bonded to a non-woven polypropylene reinforcing fabric. Geotac is resistant to placement of asphalt concrete overlays at temperatures up to 300°F (149°C).

**GeoTac HS** is a higher strength version of Geotac with increased puncture, tear and temperature resistance (overlay temperature can range up to 350°F (177°C)), that is used when increased toughness and durability in the waterproofing installation is desired.

**PavePrep SA** is a heavy duty high strength waterproofing membrane that is 0.135 inch (3.4mm) minimum thickness which is composed of a flexible, high density asphalt mastic bitumen between a top layer of heat resistant, high strength woven polyester reinforcing fabric and a bottom layer of non-woven heat resistant polyester fabric with a polymer modified asphalt self-adhesive layer and removable release liner. The high strength fabrics provide increased reinforcement and cracking resistance. PavePrep SA is resistant to asphalt overlay temperatures up to 350F (177C).

**PavePrep TSA** is composed of the same fabrics and asphalt layers as PavePrep SA, but is thinner with thickness of 0.080 and 0.115 inch (2.0-2.9mm).

All of the above membrane products are supplied in three widths-- 12, 36 and 48 inch (0.305, 0.915, and 1.22 m) for use in waterproofing installations. The 36 and 48 inch widths are used for the bulk of the area installation, and the 12 inch is used at edges, and for reinforcing at protrusions, drains or other discontinuities.

**SURFACE PREPARATION PROCEDURES:** For best performance, these products must only be applied to deck 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. Deteriorated areas shall be repaired 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 deck surfaces 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.

**Repair of Cracks, Joints & Other Distresses:** Working joints in the bridge shall be inspected and repaired if necessary to assure that they are functioning appropriately. Other cracks or joints in the deck asphalt or portland cement concrete surface 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, or cracked areas, shall be cleaned of loose pavement to expose sound pavement and then patched with approved materials including Crafco PolyPatch, Mastic 1, TechCrete, a compacted 3/8" (1cm) maximum sized hot mixed asphalt concrete, quality cementitious patching materials or a quality cold applied patching material. Note that solvent containing products must be allowed to fully cure prior to membrane

placement, or membrane 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 all bridge deck waterproofing installations, primer use is required to assure optimum adhesion of the waterproofing membrane. Recommended primer is CrafcO Asphalt Primer (Part No. 33140) or equivalent. CrafcO Asphalt Primer is a solvent based asphalt primer that is applied by brush, roller or spray at an application rate of between approximately 200 to 400 ft<sup>2</sup>/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 approximately 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 application is 45°F (7°C). Primer is cured sufficiently for membrane installation 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. Areas of excess application will take longer to cure and should be brushed out to speed curing. 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. CrafcO 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 ft<sup>2</sup>/gal). Membrane is to be installed the same day as Pcf-100 in applied. Membrane can be applied immediately into the hot PCF-100 or after it has cooled.

### **MEMBRANE INSTALLATION:**

**Weather and Temperature:** The minimum surface temperature for installation of these membranes is 45°F (7°C). 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 which may interfere with development of adhesion.

**Membrane Placement:** These products are to only be applied to surfaces that are clean, dry, prepared and primed 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 deck 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 positioned straight, smooth and wrinkle free. All bridge deck surfaces (Portland cement concrete, asphalt concrete or wood) 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 surface level, or installing with supplemental edge reinforcing strips at the corner. For all installations, the waterproofing membrane installation must extend vertically to the required level of waterproofing. **Note: The membrane 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), longitudinally and at roll ends. Roll end laps should be staggered at least 12 inches (0.3 m).

**Sealing Edges, Termination, and Protrusions–** Sealing of the installed membrane edge at all curbs, joints, protrusions, edges, or other discontinuities is required. Sealing is not required at overlaps in the membrane. Sealing shall be done with CrafcO PCF-100 sealant applied at 320-375F (160-191C) for PavePrep SA, PavePrep TSA, and Geotac HS, and at 320-350F (160-177C) for Geotac, or other approved sealing mastic. Contact CrafcO for additional information. Sealing should consist of applying a 1 - 2" (2.5 - 5 cm) wide layer or bead of sealant or mastic, centered over the membrane edges approximately 1/16 – 1/8" (1.5 - 3 mm) thick. If cold applied mastic is used, it must cure at least 24 hours prior to opening to traffic or overlaying. If the entire membrane installation is not completed in 1 day, exposed membrane edges are to be sealed with PCF- 100 or approved mastic to assure edge sealing and adhesion to prevent moisture or debris intrusion under the membrane.

**Penetrations, Drains, Manholes Edges, 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 applied at temperatures listed above, or with approved cold applied mastic. Contact CrafcO for recommendations. For some deck and waterproofing designs, strips of the membrane that are 12 inch (30 cm) wide are also used to provide additional reinforcement at edges or protrusions and to assist with waterproofing along vertical edges to the overlay surface level. In these designs, the edge joint between the surface membrane and the edge strip shall be sealed. At protrusions, above the membrane, cut membrane strips to place around the protrusions to the required waterproofing 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 or edge, with edges sealed with PCF-100 or approved 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 bridge decks and pavements, 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. Small 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 PCF-100 or approved mastic. All joints, edges, protrusions and discontinuities, should be inspected for adhesion and sealing. If deficiencies are noted, they are to be corrected before proceeding with additional construction. **NOTE: The most likely areas for leaks in the membrane installation to occur are at edges, joints and protrusions. Inspection shall assure appropriate membrane installation at laps, and roll ends, and appropriate sealing at edges, protrusions, and discontinuities.**

**Traffic:** After installation is complete and inspected, these membranes can be immediately paved over. Many times, though it is necessary for the pavement to be opened to traffic prior to overly construction. These membranes are resistant to traffic for temporary

short time periods, preferably less than 24 hours, but can be up to 7 days. **CAUTION: These products 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 ASPHALT CONCRETE:** Paving can occur immediately after installation and inspection of these 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 1/2" (3.8 cm). The asphalt concrete mixture type used should be as specified by the highway agency.

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

**Placing Asphalt Concrete:** The 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 due to excessive membrane softening that may occur under the windrow. Screenshot 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, asphalt mixture laydown temperature should not exceed 300°F (149°C), and with GeoTac HS, PavePrep SA, and PavePrep TSA maximum mix temperature is 350°F (177°C).

**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:** These products 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 Material Safety Data Sheets for these products. Installation requires use of cutting tools, rollers and other equipment and workers may be in traffic environments 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. Primer and cold applied sealing mastic may contain combustible or flammable solvents. Adequate fire protection measures are to be taken during primer installation as specified in the primer MSDS.

**ADDITIONAL INFORMATION:** For additional information, refer to Product Data Sheets and Material Safety Data Sheets for these products or contact CrafcO, Inc. at [www.crafcO.com](http://www.crafcO.com).