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APPLICATION INSTRUCTIONS
ISAC

JULY 2005

READ BEFORE USING THIS PRODUCT

GENERAL: ISAC is a high performance base isolation, heavy duty geo-composite reinforcing membrane that provides the maximum level of reduction of reflective cracking of asphalt concrete overlays. ISAC (Interlayer Stress Absorbing Composite) isolates the overlay from the underlying pavement and reinforces with a high strength mesh to reduce cracking. ISAC is composed of a flexible, highly polymer modified asphalt mastic sandwiched between an upper layer of a specialized, high strength woven, open grid reinforcing polyester, and a bottom layer of a non-woven polyester fabric. The top layer is covered with a removable release liner. ISAC is supplied in a 36″ (0.91 m) width, wound in rolls. To use, ISAC is unrolled onto a prepared pavement surface into an application of bonding adhesive to adhere it to the pavement surface, and then rolled to secure in place. The asphalt concrete overlay is then constructed on top. ISAC is used to reduce reflective cracking in asphalt overlays, placed over cracks and joints in both portland cement and asphalt concrete pavements. The polyester fabrics in ISAC are resistant to overlay temperatures up to 350°F (177°C).

PRODUCT SELECTION: ISAC is used over cracks and joints when the maximum degree of reflective cracking reduction of overlays is desired, such as at airports, high traffic freeways, tunnel entrances, toll plazas or other areas critical paving areas. ISAC should not be used where the asphalt concrete overlay will be less than 2″ (5 cm) in thickness. ISAC can be used on longitudinal, transverse and block cracks in asphalt concrete pavements, and over longitudinal, transverse and construction joints of Portland cement concrete pavements. Pavements suitable for ISAC use should have stable bases and should not experience excessive differential vertical deflection from traffic loadings.

SURFACE PREPARATION PROCEDURES: For best performance, ISAC 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. ISAC will not reduce reflective cracking in pavements with high differential vertical movement at cracks or joints. 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. The surface should be sufficiently level or plane without protrusions or depressions, so that ISAC will be in complete contact with the surface.

Cleaning: The surface should be swept or blown with clean moisture and oil free compressed air to remove dirt, dust, vegetation or other miscellaneous debris. Areas that are 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 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. Abrasive cleaning or high pressure water blasting may be required for PCC to remove curing agents or form release compounds.

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 ISAC installation.

Repair of Cracks, Joints & Other Distresses: Cracks and joints in both asphalt concrete and Portland cement concrete surfaces that are wider than 1/4″ (6mm) but not exceeding 2″ (50mm) shall be cleaned and sealed with an approved quality hot applied sealant or an approved elastomeric chemically curing sealant that is suitable for use in typical applications in the project climatic area. Emulsified or cutback sealants or fillers should not be used. The sealant shall be applied flush with the surface or slightly recessed. Follow manufacturer and agency instructions for installation.

Cracks or joints 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 Crafco Polypatch, Mastic 1, ElastoCrete, ElastoPatch or TechCrete, a 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 evolves.

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.

BONDING TO THE PAVEMENT:

A properly applied layer of bonding adhesive is required to adhere ISAC to pavement surfaces. The bonding adhesive should be a hot applied paving grade asphalt cement meeting requirements of ASTM D6373, "Standard Specification for Performance Graded Asphalt Binder", grades PG 70-10, PG 64-16 or PG 64-22 in moderate to hot climates and PG 58-22 or 58-28 in cooler climates. Asphalt cement is to be evenly spray or squeegee applied at 300 to 350°F (149 - 177°C) to the pavement surface at a rate of 0.15 gsy (0.70 l/sm). The bonding adhesive should be applied approximately 1-2″ (25 to 50mm) beyond the width of the ISAC installation. For milled asphalt concrete pavement surfaces, application rate should be 0.20 gsy (0.93 l/sm). Bonding adhesive application rate may

need to be slightly adjusted depending on the porosity and texture of the pavement. Excessive bonding adhesive applications may cause membrane slippage during paving. ISAC is to be applied quickly into the hot bonding adhesive to assure adhesion. Sufficient adhesive should be used to saturate the bottom fabric layer and bond the membrane to the surface without excess. If a stronger bond is desired, Crafco PCF-100 may be used instead of the hot asphalt cement. PCF-100 should be applied at 350-400°F (149-204°C) at a rate of 0.15 to 0.20 gsy (0.70 to 0.93 l/sm).
Solvent cutback asphalts or emulsified asphalts are not to be used for adhering ISAC to the pavement surface.

INSTALLATION:
Weather and Temperature: The minimum surface temperature for installation of ISAC is 50°F (10°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 presence of surface moisture.
Placement: ISAC is unrolled onto the prepared surface and into the bonding adhesive with the open weave grid side placed face up. The release liner is then removed and discarded. During unrolling, the product should be kept in tension to minimize wrinkling. ISAC can also be installed by cutting to a desired length and placing into the bonding adhesive instead of unrolling. ISAC must be placed into the hot bonding adhesive layer quickly so that the bottom fabric is saturated. Application trolleys are available to assist with unrolling and application. ISAC is to be layed straight, smooth and wrinkle free. During installation, ISAC is to be placed centered over the crack or joint. Joints in ISAC are to be butted, not overlapped. Just after applying to the surface, ISAC is to be pressure rolled to establish a tight and full continuous bond with the underlying surface. Steel wheel or pneumatic 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.
Installation Inspection and Repair: Following rolling, the installation is to be inspected for deficiencies and repaired if required. Blisters should be punctured to allow air to escape, and then pressed into place. Minor wrinkles less than 3/8″ (1 cm) can be slit and re-adhered. Larger areas of damaged membrane should be removed and patched with additional bonding adhesive and ISAC. 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 surfaces, ISAC can be immediately paved on. Many times, though it is necessary for the pavement to be opened to traffic prior to overlay construction. ISAC is resistant to traffic for short time periods, preferably less than 24 hours. Note that ISAC is slipperier than pavement, especially when wet. Cautions 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 over ISAC. Following installation, ISAC may be exposed to rain without damage, but must be dry prior to paving. Minimum compacted asphalt concrete thickness is 2″ (5 cm). The asphalt concrete mixture type used should be as specified by the highway agency. Note that in some cases a shadowing effect, in which the membrane pattern is seen in the overlay surface, may occur due to the thickness of the membrane. If this occurs, increasing overlay thickness or use of 2 lift paving can eliminate the effect.
Tack Coat: A tack coat must be applied prior to paving. Recommended tack coat application rates are 0.10 to 0.12 gsy (.24 to .29 l/sm) (residual) of paving grade asphalt cement or standard emulsified asphalt tack coat materials. Cutback tack coats are not permitted as they may soften the ISAC.
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 ISAC 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 ISAC, laydown temperature should not exceed 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: ISAC 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 this product. 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.

ADDITIONAL INFORMATION: For additional information, refer to Product Data Sheets and Material Safety Data Sheets for this product or contact Crafco, Inc. at www.crafco.com.