POLYFLEX BRIDGE DECK SYSTEM
FIELD QUALITY CONTROL

1. MATERIAL STORAGE, HANDLING AND SAFETY

1.1 Polyflex Bridge Deck System is delivered in clearly marked containers with manufacturer's identification, lot numbers and shelf-life expiration dates. Store materials in a clean dry and protected location at 45°F - 80°F. Containers should not be stored directly on the concrete or steel substrate. Avoid freezing temperatures and direct sunlight.

1.2 Refer to Technical Data Pages and Material Data Sheets at all times before and during application.

2. SURFACE PREPARATION

2.1 **Concrete**:

2.1.1 Remove all existing coatings and linings by shot blasting, abrasive blasting or other method approved to achieve a mechanical profile according to SSPC SP13/NACE No 6. ICRI Visual Standards, CSP 4-6 will be used to compare surface texture.

2.1.2 Always verify moisture content to be less than 6% at or below substrate surface. A Pin-Type moisture meter will measure the electrical resistance between the pin electrodes to provide the percentage moisture content (%MC) when measured with an Elcometer 7410 Concrete Moisture Meter or other approved by Wasser.

2.1.3 A 28 day cure is usually required for all freshly placed concrete. In the event that the 28 day cure has not lapsed, follow the guideline of less than 6% moisture content before applying primer.

2.1.4 After the concrete has been prepared, a test shall be performed to measure the substrate cohesion/primer adhesion according to ASTM D 7234. The pull test will be pass if adhesion strengths reach 150 psi.

2.1.5 Concrete with irregular surfaces may require additional concrete repair to eliminate any potential puddling of the primer.

2.1.6 Irregular concrete surfaces will require additional membrane materials.

2.2 **Steel:**

2.2.1 Remove all existing coatings or linings by shotblasting, abrasive blasting or other method approved to achieve a "Near White" blast to SSPC SP-10/NACE No.2 with a 3-5 mil anchor profile.

2.2.2 After substrate has been prepared, a test shall be performed to measure the primer adhesion strength according to ASTM D4541. The pull test will pass if adhesion strengths reach 300 psi.

3. POLYFLEX 111 PRIMER APPLICATION

3.1 **Storage and Handling**: Store materials in original containers at ambient temperatures of 45°-80°F. Avoid freezing temperatures and direct sunlight.

3.2 **Weather Limitations**: Primer can be applied at 41°F and rising. Do not apply if rain is expected within 2 hours following the application. Humidity levels must be monitored with levels not to exceed 85% RH. Application may proceed given the substrate temperature is 5°F above dew point.

3.3 **Protection of Workers, Traffic and Adjacent Areas**: Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and curing of the system. If necessary, mask or cover adjacent areas by suitable means.

3.4 **Application Rate**: Concrete: Apply a thin coat, 8-13 mils DFT, of properly mixed material at a rate of 150-200 sq. ft. per gal. by roller or spray. Ensure all material is evenly dispersed and that no puddles or heavy spots remain. Coverage will vary depending upon porosity of the substrate and surface texture.

Steel: Apply a thin coat, 3-5 mils DFT, of properly mixed material at a rate of 320-535 sq.ft. per gal. by roller or spray.

3.5 **Cure Time**: (@75°F ± 2°F) Wait approximately 1 hour or until primer becomes tacky before applying Membrane. If the primed areas become wet from rain or condensation and/or are not top coated within 24 hours, the primer will need to be abrasively prepared prior to repriming.

3.6 **Reactivity and Non-Cementitious Patches**: Polyflex concrete primers are not recommended for use over a magnesium phosphate patching material unless additional preparation is provided by removing the top surface of the patch or treating it with a cementitious material.

3.7 **Quality Control Testing**: The following tests will be performed to ensure the primer's integrity.

3.7.1 Moisture Test on concrete surfaces

3.7.2 Temperature and Humidity readings

3.7.3 Adhesion Pull Test

3.8 **Deficiency Repairs**: Any repair of the primed surface will be carried out following the recommendations of the on-site representative to the satisfaction of the State DOT Engineer.

4. POLYFLEX 311 MEMBRANE APPLICATION

4.1 **Storage and Handling**: Store materials in original containers at ambient temperatures of 45°-80°F. Avoid freezing temperatures and direct sunlight.

4.2 **Weather Limitations**: Refer to Wasser Technical Data Page for drying time schedule as part of Wasser's QC testing. Humidity levels must be monitored with levels not to exceed 85% RH. Application may proceed given the substrate temperature is 5°F above dew point and rising.

4.3 **Protection of Workers, Traffic and Adjacent Areas**: Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and curing of the system. If necessary, mask or cover adjacent areas by suitable means. All work to be performed by Licensed Applicators.

4.4 **Application Rate**: Agitation of Part B Resin is required in case any pigments or solids have settled to the bottom of the containers. Membrane to be applied at 80 mils nominal thickness. Material usage can be gauged by monitoring the proportioner's stroke count or by checking film thicknesses of material sprayed onto the deck area.

Membrane should not exceed asphalt elevation height. If installing an asphalt wear course over the membrane system, a 2" minimum is required.

Spray equipment must be capable of producing 2,500 psi to ensure a minimum of 2,000 psi working pressures. Equipment working temperatures should be maintained at 140°F-160°F.

4.5 **Cure Time**: (@ 75°F±2°F) Membrane will achieve sufficient cure in approximately 1 hour for rubber wheeled construction traffic, if necessary. If the recoat window of 12 hours has been exceeded,

membrane surface must be treated with Polyflex Surface Activator. Please refer to other dry times listed on Technical Data Pages.

4.6 **Bond Strength**: Bond strength of the membrane and its adhesion to the prepared and primed substrate shall be a minimum of 150 psi (1 MPa) in accordance with ASTM D7234. The frequency of these random tests shall be one test per 5,000 sq.ft. but not less than 3 adhesion tests per bridge.

4.7 **Quality Control**:

4.7.1 Membrane Thickness: Magnetic(SSPC-PA2), Ultrasonic(SSPC-PA9), and/or Destructive(ASTM D1005) testing will be used to calculate overall membrane thickness.

4.7.2 Membrane Adhesion: Pull testing will be performed at the rate specified by State DOT Engineers using ASTM D 7234 for concrete substrates.

5. POLYFLEX 411 SHEARCOAT APPLICATION

5.1 **Storage and Handling**: Store materials in original containers at ambient temperatures of 45°-80°F. Avoid freezing temperatures and direct sunlight.

5.2 **Weather Limitations**: Refer to Wasser Technical Data Page for drying time schedule as part of Wasser's QC testing. Humidity levels must be monitored with levels not to exceed 85% RH. Application may proceed given the substrate temperature is 5°F above dew point and rising.

5.3 **Protection of Workers, Traffic and Adjacent Areas**: Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and curing of the system. If necessary, mask or cover adjacent areas by suitable means. All work to be performed by Licensed Applicators.

5.4 **Application Rate**: Agitation of Part B Resin is required in case any pigments or solids have settled to the bottom of the containers. ShearCoat to be applied at 40 mils nominal thickness. Material usage can be gauged by monitoring the proportioner's stroke count. An approved aggregate will be broadcast at a rate of .33 to .50 lbs. per square foot into the wet film and fully integrated into the system.

Membrane system should not exceed asphalt elevation height. If installing an asphalt wear course over the membrane system, a 2" minimum is required.

Spray equipment must be capable of producing 2,500 psi to ensure a minimum of 2,000 psi working pressures. Equipment working temperatures should be maintained at 140°F-160°F.

5.5 **Cure Time**: (@ 75°F±2°F) Membrane will achieve sufficient cure in approximately 1 hour for rubber wheeled construction traffic, if necessary. If recoat window of 12 hours has been exceeded, shearcoat surface must be treated with Polyflex Surface Activator. If aggregate has been embedded, it must be removed before applying Polyflex Surface Activator or additional ShearCoat. Please refer to other dry times listed on Technical Data Pages.

5.6 **Quality Control**:

Membrane Thickness: Magnetic, Ultrasonic and Destructive testing is not possible because of imbedded aggregate. The quantity of material dispensed can be determined by monitoring the proportioner's stroke count (stroke count/gallon).

6. MEMBRANE SYSTEM REPAIR (with an asphalt or concrete wearing course)

6.1 If an area requires repair or if the membrane has been damaged, a mandatory repair shall be performed.

6.2 Any new membrane that is to be joined to existing membrane must overlap the existing membrane by 6 inches. Existing membrane must be fully bonded to the substrate with terminated edges. Pull-off testing of new membrane, overlapped or tied into existing membrane, shall be performed. Follow

ASTM D7234 for concrete and masonry surfaces with a minimum recommended value of 150 psi. Follow ASTM D4541 for steel structures with a minimum recommended value of 300 psi.

6.3 Sawcut a perimeter around the affected area. Use jackhammers with flat blades to expose sound membrane.

6.4 Abrade existing membrane using a grinder or wire wheel to remove embedded aggregate and achieve a visible texture. Clean the membrane with MEK or Acetone.

6.5 Treat existing membrane with Polyflex Surface Activator.

6.6 Install Polyflex 111 Primer, Polyflex 311 Membrane and finally Polyflex 411 ShearCoat to specified thicknesses.

7. BLISTER REPAIR

7.1 If a blister forms in the membrane during or after asphalt placement , utilize the POLYFLEX Blister Repair Kit in accordance with the instructions provided in technical data page.

8 OTHER LOCALIZED REPAIRS

8.1 **Repair for Large Surface Areas**: In the unlikely event of a large-scale delamination or poor adhesive qualities, total removal of an installed system may be necessary. The preparation tools that are available include High Volume Grinders, Scarifiers and Milling Equipment. A detailed scope of work must be created to match the specifics of the failed area.

8.2 **Repair for Cored Asphalt Areas**: In the event that the existing membrane has been disturbed or breached during asphalt coring, the area(s) need to be prepared and recoated with Polyflex 411 ShearCoat. Air lance the holes with 100psi air pressure to remove any remaining debris. Apply 80 mils of Polyflex 411 and allow to cure for 5 minutes. Apply 40 mils of Polyflex 411and broadcast approved aggregate into the opening. The material can be installed by mixing a small batch of Polyflex 411 by hand or dispensing from pre-filled cartridges.

8.3 **Removal of Asphalt Wear Course and Waterproofing Membrane**: In the event of total asphalt failure, remove asphalt material and waterproofing membrane from the deck surface and approach slabs if necessary. Remove the existing asphalt by cold milling till the operator scratches the concrete deck. Then, remove any remaining asphalt or membrane by any combination of the following methods.

1. Scraping with a front-end loader with a smooth-edged bucket or blade(no teeth)
2. Diamond Grinding
3. Shot Blasting

Achieve a mechanical profile according to SSPC SP13/NACE No 6. ICRI Visual Standards, CSP 4-6 will be used to compare surface texture.

9. TACK COAT APPLICATION

9.1 **Storage and Handling:** Store materials in original containers in cool, dry conditions and out of direct sunlight.

9.2 **Weather Limitations:** Assure all surfaces are dry before application and the weather forecast does not indicate rain before tack coat "breaks".

9.3 **Protection of Workers, Traffic and Adjacent Areas:** Prior to use, the user must have a basic understanding of heating methods. Surfaces should be kept free of any traffic once surface preparation has begun and no trades shall be permitted in areas during the application and drying of the tack coat. If necessary, mask or cover adjacent areas by suitable means.

9.4 **Application :** Tack coat shall be applied to the surface of the aggregated membrane topcoat to aid in bonding the asphalt concrete to the membrane. The rate of application shall be 0.1 gal./sy or greater. The tack coat shall be dispersed from the asphalt contractor's equipment prior to asphalt placement. The surface shall be paved the same day as tack coat is installed.

Disclaimer:

Values indicated are for guide purposes only, as actual values can change due to application conditions, application methods, environmental conditions etc. The information contained herein is subject to change without notice." Contact your Wasser Representative for any current changes to this Field Quality Control document.