



PPG Highway Waterproofing System Installation Procedure

PART 1 - PRE-APPLICATION

1.1 SECTION INCLUDES

- A. Installation procedures for Spray Applied Waterproofing Membrane, aka “Membrane Waterproofing (Cold Liquid Elastomeric),” “Cold Liquid Applied Elastomeric Waterproofing Membrane,” “Cold Liquid-Applied Membrane (CLAM),” etc. with an asphalt or concrete wearing course.

1.2 REFERENCED PARTIES

- A. Owner: The individual, company, or agency which owns the structure(s) under contract.
- B. General Contractor: The contractor employed by the Owner to provide all labor, materials, tools, and equipment, either directly or through sub-contractors, to perform all operations necessary for the construction associated with the contract documents.
- C. Installer: The installer of the waterproofing system. In the event the Installer is directly contracted by the Owner, the installer shall assume the responsibilities designated to the General Contractor listed herein.
- D. Waterproofing Inspector: An individual with the dedicated role of performing field testing of the PPG Highway Waterproofing system as specified in the contract documents.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in PPG’s original containers labeled with PPG’s name, product brand name, and batch/lot numbers.
- B. Copies of Safety Data Sheets (SDS) and directions for storage and handling for all components shall be kept on site for review.
- C. Store materials in a clean, dry, protected location and between 55°F and 95°F (15°C and 35°C). Protect stored materials from direct sunlight. Avoid freezing.
- D. Remove and replace product damaged by shipment, weather, or job conditions or which cannot be applied within their stated shelf life.

1.4 PROJECT CONDITIONS

- A. Adjacent areas not to be waterproofed shall be protected. Apply or erect masking, spray curtains, and partitions as necessary to prevent overspray.
- B. Do not begin membrane installation when precipitation (rain, fog, sleet, hail, snow, freezing fog, hoarfrost, etc.) is active or likely to occur, or if environmental conditions are, or are likely to be outside of the recommended parameters.
- C. Concrete and Masonry Structures and Substrates
 - 1. General Contractor shall provide a sound substrate in accordance with the contract documents.

2. If no such requirements are listed in the contract documents, General Contractor shall provide a sound substrate as described in SSPC-SP 13/NACE No. 6. Repair spalls and other defects in accordance with contract documents.
3. If no such requirements are listed in the contract documents, utilize a cementitious material such as Rapid Set DOT Mix. Do **not** utilize repair mortars that contain magnesium phosphate. Contact PPG for additional information.
4. Evaluate substrate moisture content in accordance with **PPG Highway Waterproofing System Inspection and Testing Procedure** document.
5. Install system when air and substrate temperature meet the requirements of the contract documents or is above 32°F (0°C), whichever is more stringent. Do not install system if relative humidity is above 85%. If installation temperatures are expected to be below 32°F (0°C) contact PPG prior to starting application for additional guidance.
6. If relative humidity is less than 30%, the substrate temperature shall be 10°F (6°C) above the dew point and rising.
 - a. If the difference between the substrate temperature and dew point is increasing, once the substrate temperature is 10°F (6°C) above the dew point installation may commence.
 - b. If the difference between the substrate temperature and dew point is decreasing, once the substrate temperature is less than 10°F (6°C) above the dew point installation shall cease.
7. If relative humidity is greater than 30% the substrate temperature shall be 8°F (4.4°C) above the dew point and rising.
 - a. If the difference between the substrate temperature and dew point is increasing, once the substrate temperature is 8°F (4.4°C) above the dew point installation may commence.
 - b. If the difference between the substrate temperature and dew point is decreasing, once the substrate temperature is less than 8°F (4.4°C) above the dew point installation shall cease.
8. Installer shall closely monitor substrate temperature and dew point throughout waterproofing installation process. If the difference between the substrate temperature and dew point is decreasing and nearing the above stated limits, Installer shall begin preparing to cease installation.

D. Metal Structures and Substrates

1. General Contractor shall provide a sound substrate in accordance with the contract documents.
2. If no such requirements are listed in the contract documents, General Contractor shall provide a sound substrate as described in SSPC-SP 10/NACE No. 2 Near-White Metal Blast Cleaning.
3. Remove any standing water and allow to dry natural or dry using clean, oil free air.
4. Install the system when air and substrate temperatures are above -20°F (-25°C). Do not install system if relative humidity is above 85%.

5. If relative humidity is less than 30%, the substrate temperature shall be 10°F (6°C) above the dew point and rising.
 - a. If the difference between the substrate temperature and dew point is increasing, once the substrate temperature is 10°F (6°C) above the dew point installation may commence.
 - b. If the difference between the substrate temperature and dew point is decreasing, once the substrate temperature is less than 10°F (6°C) above the dew point installation shall cease.
6. If relative humidity is greater than 30% the substrate temperature shall be 8°F (4.4°C) above the dew point and rising.
 - a. If the difference between the substrate temperature and dew point is increasing, once the substrate temperature is 8°F (4.4°C) above the dew point installation may commence.
 - b. If the difference between the substrate temperature and dew point is decreasing, once the substrate temperature is less than 8°F (4.4°C) above the dew point installation shall cease.
7. Installer shall closely monitor substrate temperature and dew point throughout waterproofing installation process. If the difference between the substrate temperature and dew point is decreasing and nearing the above stated limits, Installer shall begin preparing to cease installation.

PART 2 - EXECUTION

2.1 PREPARATION

- A. Provide clean, sound, and dry substrate free of dirt, dust, debris, or deleterious material.
- B. Concrete and Masonry Structures and Substrates
 1. Prepare concrete surfaces in accordance with the requirements specified in the contract documents.
 2. If no surface preparation method is specified in the contract documents, concrete surfaces shall be prepared in accordance with SSPC-SP13/NACE No. 6 Surface Preparation of Concrete. Installer shall ensure the prepared concrete surface has a Concrete Surface Profile ("CSP") of at least 3 when measured using ICRI CSP chips.
- C. Metal Structures and Substrates
 1. Prepare metal surfaces in accordance with the requirements specified in the contract documents.
 2. If no surface preparation method is specified in the contract documents, metal surfaces shall be prepared in accordance with SSPC-SP10/NACE No. 2 Near-White Blast Metal Cleaning and installer shall ensure a 3-5 mil (75-125 µm) blast profile is achieved.
- D. Prepare other substrate types in accordance with contract documents. If no surface preparation method is specified, contact PPG for additional information.

- E. Treat cracks, joints, terminations, etc. in accordance with contract documents. If such details are not provided in contract documents, refer to PPG's standard detail drawings.

2.2 INSPECTION

- A. Prior to application of primer, responsible party(s) shall inspect and/or approve substrate preparation in accordance with the contract documents.

2.3 INSTALLATION

- A. Do not begin waterproofing installation until all materials and equipment necessary to perform the installation are at the job site and all required repairs have been completed.
- B. Installer shall ensure spray and other installation equipment is in good working condition and properly maintained in accordance with the equipment manufacturer's model and/or part-specific manual(s)¹.
- C. Installer shall ensure all components of the waterproofing system have been stored, handled, and are processed in accordance with the **Product Data Sheet**, **Safety Data Sheets**, and **Material Processing & Handling Information** documents.
- D. Installer shall mix B-Side components of any liquid materials with pigment, including but not limited to, PPG BD Membrane and PPG BD Top Coat prior to application. Installer shall ensure pigment is fully dispersed.
- E. Installer shall ensure proper equipment settings for temperature and pressure of coating materials are met in accordance with the product's corresponding **Material Processing & Handling Information** document.
- F. Waterproofing Inspector shall perform and record relevant field tests and readings throughout the installation process in accordance with the contract documents.
- G. Primer shall be mixed and processed in accordance with the **Product Data Sheet** and **Material Processing & Handling Information** document.
 - 1. For concrete or masonry structures and substrates, spray, squeegee, or roll primer at the application rate specified in the contract documents. If no application rate is specified in the contract documents, primer shall be applied at 130-200 ft² per gallon (3.0-5.0 m² per Liter) over surfaces to receive spray applied waterproofing membrane. Allow primer to cure until tack-free prior to performing subsequent steps. Installer shall ensure subsequent layers of waterproofing system are installed within recoat window. Refer to **PPG Highway Waterproofing System Components Recoat Windows** document for additional information.
 - 2. For metal structures and substrates, spray, squeegee, or roll primer at the application rate specified in the contract documents. If no application rate is specified in the contract documents, primer shall be applied at 400-800 ft² per gallon (10-20 m² per Liter) over surfaces to receive spray applied waterproofing membrane. Allow primer to cure until tack-free prior to performing subsequent steps. Installer shall ensure subsequent layers of waterproofing system are installed within recoat window. Refer to **PPG Highway Waterproofing System Components Recoat Windows** document for additional information.

¹ Installer is responsible for ensuring all components of application equipment, including, but not limited to, generators, air compressors, material transfer assemblies, proportioning units, material hoses, and spray guns are properly maintained and always in good working condition.

3. Coverage rates and required number of coats may vary based on surface profile, substrate conditions and primer selection.
- H. PPG Bridge Deck Membrane (“BDM”) shall be mixed and processed in accordance with the Product Data Sheet and Material Processing & Handling Information document.
1. Installer shall dispense BDM at the application rate specified in the contract documents.
 2. If no application rate is specified in the contract documents, BDM shall be applied at a rate of 20 ft² per gallon (0.5 m² per liter) to achieve a minimum thickness of 80 mils (2 mm).
 3. Allow BDM to cure until tack-free prior to performing subsequent steps.
 4. Installer shall ensure subsequent layers of waterproofing system are installed within recoat window. Refer to **PPG Highway Waterproofing System Components Recoat Windows** document for additional information.
- I. PPG BD Top Coat (“BDTC”) shall be mixed and processed in accordance with the Product Data Sheet and Material Processing & Handling Information document.
1. Installer shall dispense BDTC at the application rate specified in the contract documents.
 2. If no application rate is specified in the contract documents, BDTC shall be applied at a rate of 40 ft² per gallon (1 m² per liter) to achieve a minimum thickness of 40 mils (1 mm).
 3. Installer shall immediately broadcast aggregate into “wet” membrane at the application rate specified in the contract documents.
 4. If no application rate is specified in the contract documents, broadcast aggregate into “wet” membrane at 0.33 to 0.50 lbs. per ft² (1.5 to 2.5 kg per m²).
 5. It is recommended that aggregate coverage be consistent, generally uniform, and assessed on a “plane view”. Additional information can be found in the **PPG Aggregate Selection and Coverage Memorandum** document.
 6. Installer shall touch up areas with insufficient aggregate coverage.
- J. Remove excess, loose aggregate prior to placement of tack coat. Tack coat shall be installed in accordance with the contract documents and/or tack coat manufacturer’s recommendations.

PART 3 - FIELD INSPECTION AND TESTING

- 3.1 Refer to **PPG Highway Waterproofing Inspection and Testing Procedure** document for field inspection and testing.

Appendix A – Document Version Control

Version	Date	Author	Rationale	Approval
1.0d	8/31/2023	Jonathan Haydu	First draft	
1.0	9/6/2023	Jonathan Haydu	Issued	Jonathan Haydu James McCarthy