# **TIMBER BRIDGE FLASHING MEMBRANE (DRAFT)**

**Description**

The Contractor shall furnish and apply a self-adhered high-density polyethylene (HDPE) rubberized flashing membrane system and all timber or steel surface preparation work necessary to install the flashing membrane.

Membrane application shall be in accordance with the manufacturer’s instructions. The handling, storing, and addition of primer coating membrane components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer’s recommendations.

Product approval shall require that the membrane system meets the material specifications.

**Submittals**

The Contractor shall submit to the Engineer for approval the following documents:

1. Initial submission:
	1. The membrane system material specifications including product performance data.
	2. Certified independent test reports demonstrating conformance to Table 1.
		1. The independent lab shall be recognized by the National Cooperation for Laboratory Accreditation (NACLA) in Construction Materials Engineering and Testing (CMET) or an equal program approved by the Engineer.
			* All testing shall be performed by one independent lab unless approved by the Engineer.
		2. Independent testing reports must be dated within two (2) years from the anticipated start of membrane installation.
			* Samples for all required testing shall be fabricated at the same time. Test reports shall denote the lot of material as well as the sample fabrication and testing dates.
	3. Safety data sheets (SDS) for all components.

**Materials**

The membrane waterproofing system shall be:

* Self-adhering to applied surfaces.
* Usable on irregular surfaces

The total minimum base thickness for the membrane shall be 25 mils measured. The membrane shall be able to meet the criteria specified in Table 1.

The membrane waterproofing system shall be asbestos-free. Any required primer shall promote adhesion of the membrane to the timber or steel surface. The chemical composition of the primer, and membrane that make up the membrane waterproofing system shall conform to the Manufacturer’s specifications for the material. All components shall be approved by the Manufacturer as being compatible for use with the specified membrane. Cleaning solvents shall also be approved by the Manufacturer for use with the membrane.

**Material Delivery And Storage**

All components of the membrane system shall be delivered to the site in the Manufacturer’s original packaging, clearly identified with the products type and batch number. The Contractor shall provide the Applicator with a storage area for all components. The area shall be cool, dry, out of direct sunlight, and comply with relevant health and safety regulations. Copies of material safety data sheets for all components shall be kept on site by the Contractor.

**Table 1: Waterproofing Membrane Material Properties**

|  |  |  |
| --- | --- | --- |
| **Property** | **Test** | **Requirements** |
| Thickness | ASTM 3652 | 25mils |
| Tensile Strength  | ASTM D412 Die C Modified | 143psi |

**Application Procedure**

The installation procedure shall be per the manufacturer’s recommendations.

The membrane waterproofing system shall not be applied in either wet, damp or foggy weather, or when the ambient temperature is 45°F or below or is forecast to fall below 45°F during the application period. The temperature of the surface shall also not exceed the dew point by at least 5°F.

1. surface preparation

Follow the manufacturer’s recommendations for surface preparation before application of the membrane waterproofing system. Drive screws flush with the top of the timber surfaces prior to placing membrane.

1. Applying Primer

For systems requiring a primer for different material surfaces, follow the procedures recommended in the Manufacturer’s written instructions. All components shall be measured and mixed in accordance with the Manufacturer’s recommendations. The primer shall be allowed to cure tack-free for a minimum of 30 minutes or as required by the Manufacturer’s instructions, whichever time is greater, prior to application of the flashing membrane.

1. Applying Membrane

Unless approved by the Engineer, the membrane shall be applied in accordance with the Manufacturer’s instructions.

Following the application of the flashing membrane, the finished surface shall be visually inspected. If any defects or pinholes are found, an appropriate quantity of membrane material shall be repaired in accordance with Section 4, Repairs, below.

1. Repairs

If an area of membrane requires repair or if the membrane becomes damaged, a patch repair shall be carried out to restore the integrity of the membrane waterproofing system. The damaged area shall be cut back to sound materials and cleaned up to a width of at least 6 inches beyond the periphery of the damaged area, removing contaminants. The surface shall be primed as necessary, followed by the application of the membrane. A continuous layer shall be obtained over the timber with a 6 inch overlap onto the existing membrane. Any cleaning solvents used shall be approved by the membrane manufacturer. Repairs shall comply with the Manufacturer’s guidelines.

**Protection of Exposed Surfaces**

The Contractor shall exercise care in the application of the flashing materials to prevent surfaces not receiving treatment from being spattered or marred. Particular reference is made to the face of curbs, copings, finished surfaces, substructure exposed surfaces, and outside faces of the bridge. Any material that spatters on these surfaces shall be removed and the surfaces cleaned to the satisfaction of the Engineer.

**Acceptance**

Acceptance of the membrane shall only take place once it is determined by the Engineer that the membrane has been installed in accordance with the Special Provisions and plans and that all necessary documentation has been submitted.

NCDOT shall perform visual inspection of the application during the installation of the membrane system.

**Basis of Payment**

No separate payment will be made for *Timber Bridge Flashing Membrane.* Furnishing and applying the timber bridge flashing membrane shall be incidental to the *Timber Bridge Deck System* pay item.

Payment will be made under:

|  |  |
| --- | --- |
| **Pay Item** | **Pay Unit** |
| Timber Bridge Deck System  | Lump Sum |