

Membranes for Bridge Decks

High Performance Torch Applied Membrane

High Performance Spray Applied Membrane

Rubber Mastic for repairs

What are we protecting

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High Performance Torch applied Membrane

- This is the most popular membrane we use in Maine it is thick like a shingle a rubber mastic with fabric and small aggregate on the surface.
- Concrete surfaces need to be dry 5 % moisture content
- Primer is applied to the surface of the concrete.
- The deck is heated and the membrane melted to adhere it to the deck.
- Once applied it bond well to the concrete.
- Excess moisture causes problems.

Kittery Portsmouth sheet torch applied Membrane



Sometimes times things go wrong



High Performance Spray applied Membrane

- Deck must be dry 5% moisture
- Concrete deck is primed
- Three layers of spray applied material create the membrane
- Used in area where thin overlays are to be applied
- Used on Penobscot narrow Bridge and observatory
- More expensive

Penobscot Narrows



Penobscot Narrows



Mastic used to patch membrane

- We have been using rubber mastic to patch membrane when a milling machine removing pavement has gone too deep.
- We also have used it when we are replacing joints and remove a small portion of membrane that needs to be replaced.

Rubber Mastic used as membrane and base pavement for joint rehab work



Inferred heat truck use to heat torch applied membrane and deck for cold weather applications



Fog seal deck pavement structure



Items of interest

- We apply tack over our membranes prior to paving.
- If the deck is too rough it allows moisture under the membrane and will cause debonding of torch applied membrane.
- Magnesium phosphate patching materials do not bond well with spray on membranes.

What are we protecting

- We are trying to prevent water with salts from penetrating the decks.
- Once salt is in the decks it starts or accelerates the corrosion cycle on the steel which will cause the concrete to spall creating potholes in the deck.
- We are using more weathering steel girders which must be kept relatively dry to prevent corrosion and section loss.

What other products are we using to protect decks

- GFRP Rebar
- Stainless Rebar
- Silane sealers
- Concrete Wearing surfaces
- Polyester concrete wearing surfaces
- Fog seal over existing Pavement