

BRIDGE DECK WATERPROOFING



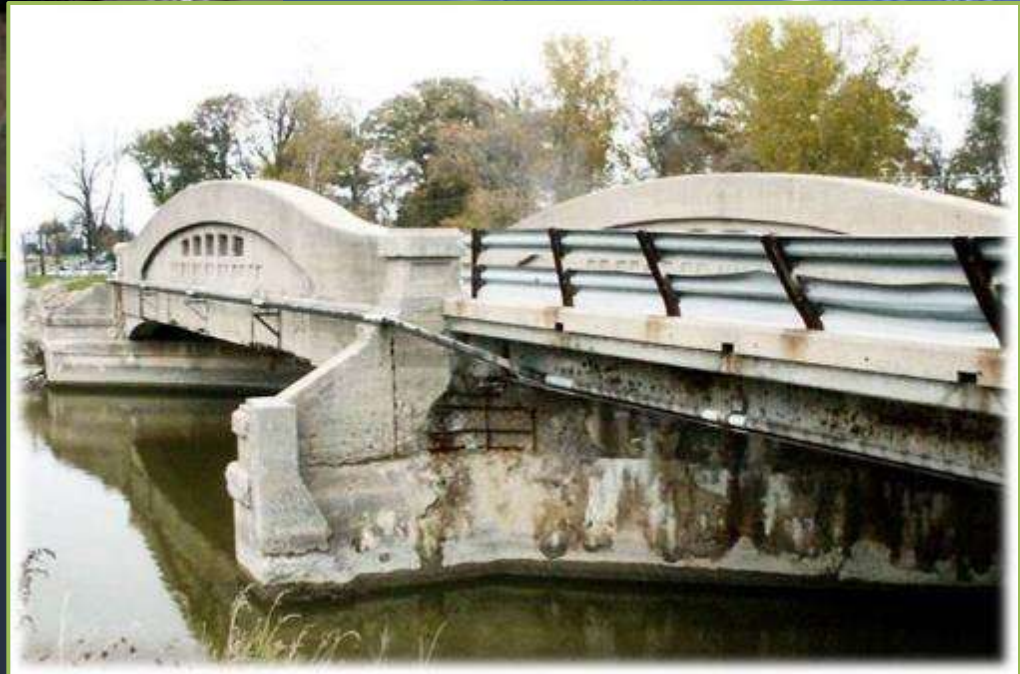
PROTECT YOUR ASSETS
Hot Applied Waterproofing

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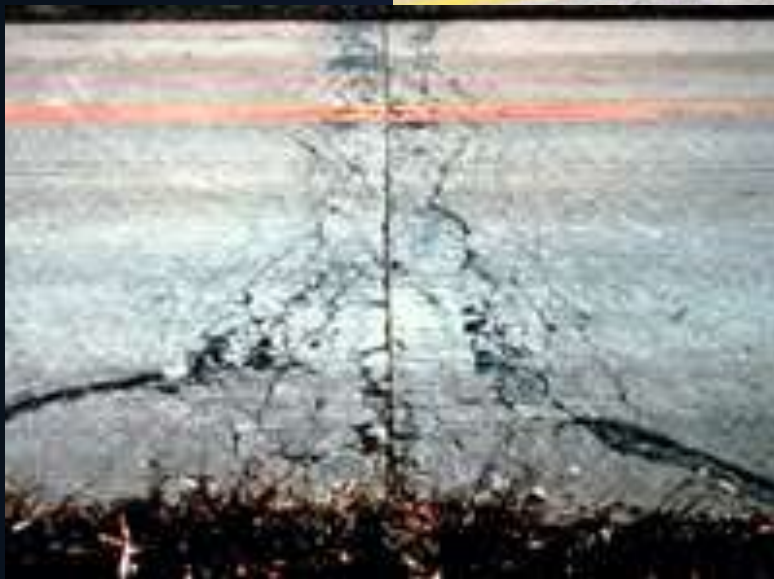
Why waterproof?

Protect deck from corrosion due to:

- Moisture
- Salt
- Chemicals



Look familiar?



Why Waterproof?



Air Voids =
Moisture =
Water =
Carrier to Pathways =
Caustic Elements
(Salts, etc.) =
Corrosion =
FAILURE

SOLUTION ⇒ Eliminate Air Voids

A little history

1960's

Partnership - Shell Oil & Uniroyal

Polymer Modified Asphalt

Used throughout the world to waterproof
above grade, below grade, roofing
assemblies, and foundations.

SOLUTION ⇒ Eliminate Air Voids

Why does it work?



Flow ● Hot Applied ● Seamless ● Voidless
Tenacious Bond ● Crack Bridging / Flexibility

The Science



Crack Sealant (6690-II) vs. 3750
Tenacious Adhesion = Stronger Bond to Deck
Toughness = Resists Slipping

System Specifications

	ASTM 6690- II	CAN/CGSB 37.50-M89
Cone Penetration @ 77° F (25° C)	90 max.	110 max.
Softening Point	80 min.	
Bond @ -29° C	Pass 3 Cycles	
Resilience %	60% min.	
Flow @ 140° F (60° C)	3 mm max.	3 mm max.
Cone Penetration @ 122° F (50° C)		200 max. (± 130 avg.)
Toughness		5.5 joule min.
Toughness Ratio		0.040 min.
Adhesion Rating		1 min.
Water Vapor Permeance		1.7 ng/Pa·s·m ² max.
Water Absorption		Loss in mass of 0.18 g max. Gain in mass of 0.35 g max.
Pinholing (250 mm x 250 mm)		1 max.
Low Temperature Flexibility @ -13° F (-25° C)		Pass
Crack Bridging @ -13° F (-25° C)		Pass 10 Cycles
Heat Stability, 5 hours		Pass
Viscosity @ 400° F (204° C)		2 to 15 seconds
Flash Point		500° F (260° C) min.

Recent Case Study - NDOR

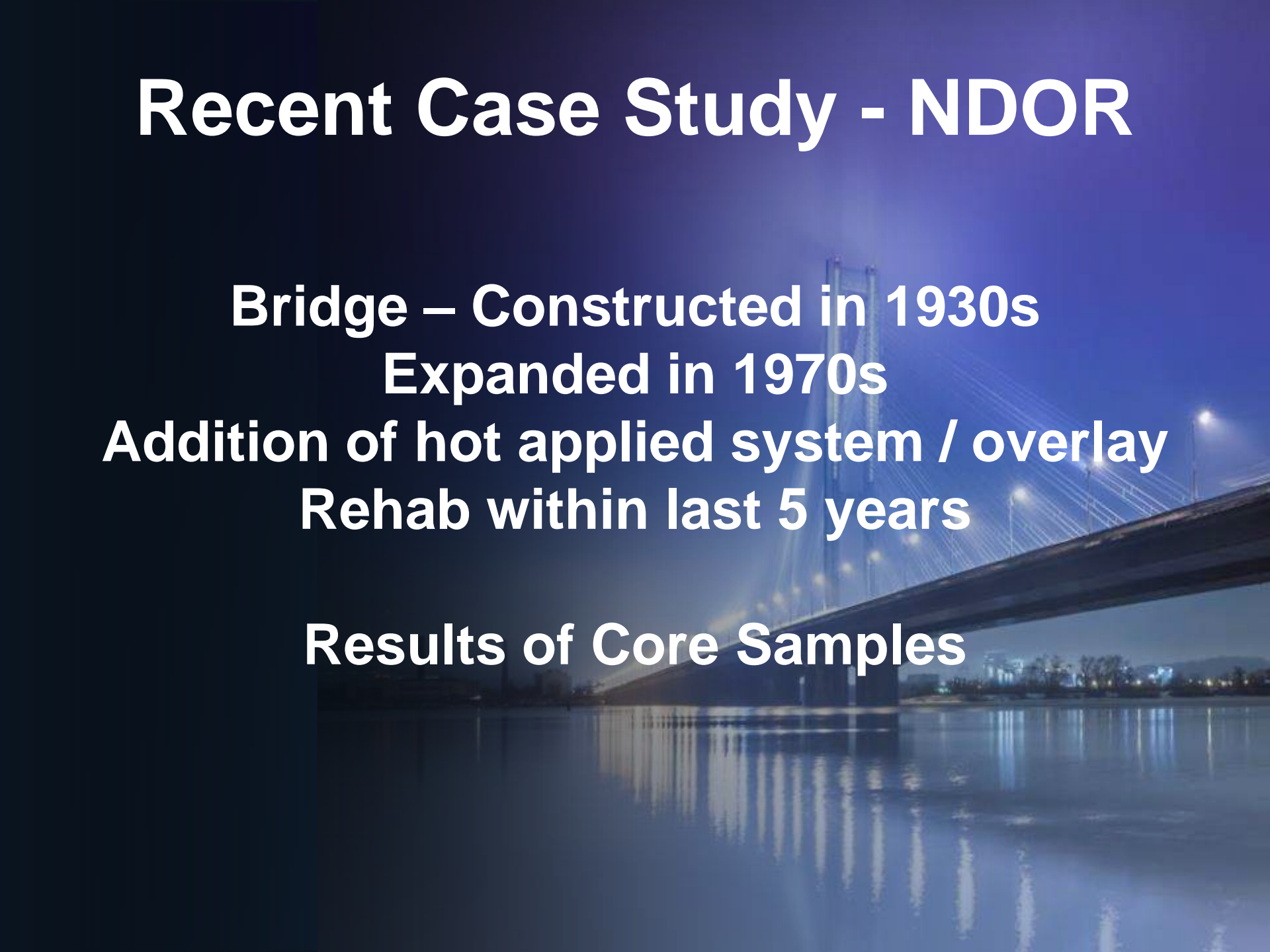
Bridge – Constructed in 1930s

Expanded in 1970s

Addition of hot applied system / overlay

Rehab within last 5 years

Results of Core Samples



Protecting our Infrastructure Investment



Hot Applied Waterproofing

Hot Applied System

Asphalt Pavement Overlay

Asphaltic Protection Board

Hot Applied Polymer Modified Asphalt Membrane

Reinforcing Fabric

Hot Applied Polymer Modified Asphalt Membrane

Primer

Concrete Bridge Deck



Primer Application



- **Primer should be spray applied. Allow primer to dry thoroughly.**
- **Rate of application: 200-400 ft² per gallon.**

Membrane Application



- Use a double-jacketed melter with mechanical agitation.
- Treat construction joints and cracks greater than 1/16" with a 125 mil coat of ULTRASEAL 3750MTO
- All detail work should be completed prior to application of the membrane.
- May be squeegee applied on horizontal surface.
- Hand troweled or roller applied on vertical surfaces.

Detail Work



Initial membrane application: 90 mils

Reinforcing Fabric



Reinforcing fabric is embedded into the membrane while it is still warm and tacky.

Rubberized Waterproofing Membrane



- A second coat of **ULTRASEAL 3750MTO** is then applied at a minimum thickness of 125 mils.

- Be sure to fully encapsulate the reinforcing fabric within the membrane.

Membrane Application



Membrane should be 215 mils (5 mm) thick

Membrane Application



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Protection Board



Install the protection board in a staggered pattern – 1" overlap

Protection Board



Detail Work

Protection Board



Detail Work

Advantages

Completely monolithic – no seams!

Fully bonded

Conforms to all surface irregularities and bonds tenaciously to acceptable substrates eliminating lateral migration of water.

Tough, flexible, thick, self-healing membrane

100% Solids - One component

No solvents means no on-site cure failures

No two part mixing

No VOC restrictions

LONG LIFE

Advantages

Can be installed at temperatures as low as 0° F (-18° C)

Provided the substrate is clean, dry, free of snow and frost

Typically installed at 200- 215 mils thick with Reinforced Fabric Assembly

This is more than three times thicker than most other waterproofing membranes. Thickness is an important benefit in that ULTRASEAL 3750MTO exhibits the ability to self-heal and better accommodate developing cracks in a concrete substrate.

Can also be used in a single layer application – typically installed at 190+ mils.

Limitations

Is not intended as an exposed membrane

Lightweight insulating concrete is not an acceptable substrate

For applications below 32°F (0°C), consult Crafc

Additional Information

A photograph of a cable-stayed bridge at night. The bridge is illuminated with blue and white lights, and its reflection is visible in the water below. The sky is dark blue, and the overall scene is serene and modern.

Tools

A cable-stayed bridge is shown at night, illuminated by streetlights. The bridge spans across a body of water, and its lights are reflected on the surface. The sky is dark blue, and the overall scene is serene and modern.

- Specification document (PDS)
 - Application Instructions
 - MSDS
 - Job site checklist
 - Application video
- Contractor installation certification checklist
 - Contractor Certification by Crafcoc

EQUIPMENT



Look familiar?

Most will have this type of equipment in house. Oil jacketed protects the integrity of the product.

Protect Your Assets

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