

## Concrete Repair Methods and Materials

### Q&A

Last Name	Question Asked	Answer Given	Answerer
Bey	how often do you apply seale	Depending on the sealer type - Silane 5-8 years, Healer Sealer 8-10 years, Thin Epoxy Overlay 10-15 years.	Jason DeRuyver
Burke	I saw a mention of installing galvanic anodes in a patch. Can you mention what situations you use galvanic anodes for?	Galvanic anodes are used in concrete patches when reinforcement is exposed. A company called Vector Corrosion Technologies (VCT) <a href="https://www.vector-corrosion.com/">https://www.vector-corrosion.com/</a> has a ton of awesome information on when to use them, how to spec them, how to install them.	Jason DeRuyver
Burke	Thanks ! very informative		
Carter	When scoping your patches, is there some percentage of the surface above which you just do a full mill and overlay?	15% is a decent guidance number for surface delamination. It also depends on deck bottom, traffic control, money and time.	Jason DeRuyver
Conley	With hammers >30lb are you concerned with the microfractures causing later delams?	If you are going with a deep patch (3/4" below top mat) the new concrete patch will be locked in. Michigan has not had issues with microfractures and premature failures. With that said, if you run the jack hammer on top of the reinforcement and vibrate the steel for prolonged periods, you could have issues.	Jason DeRuyver
Gonzalez	We typically use MasterEmaco T 1060 by BASF for quick-setting patch repairs. Is good!		
Gonzalez	For a full depth patch, is it more typically considered a rehabilitation project since it exceeds the typical scope of a maintenance task?	If you are going to do deck patching with maintenance forces, be diligent with your scoping. Sound the deck top and deck bottom. Map both out and see where the deficiencies overlap. Where the deficiencies overlap, you have a high probability of needing a full depth patch. Also, maintenance forces should have a "what if" scenario if they encounter a need for a full depth patch when they were not expecting.	Jason DeRuyver
Goralski	Are there special considerations you need to patch the bottom of the deck?	Yes - I would personally never perform a deck bottom patch over traffic. When I was at MDOT we had formed the patch from below, drilled holes through the deck and pumped in a very sticky mortar on rare occasions. There are other states that apply shotcrete to deck bottoms. It is a local decision. Best practice would be to chip the deck bottom and ensure that the concrete is attached to the bottom mat of reinforcement.	Jason DeRuyver
Haught	Is my audio not working or is there nothing being said?	you should hear now	Jason DeRuyver
Jose	Any recommendations for overhead patches?	Use a patching material specifically designated as Vertical/Overhead (VOH) - I believe SIKKA makes one. I also recommend following local best practices, and being very cautious when performing over traffic.	Jason DeRuyver
Khomyakov	If rebar is epoxy coated, is sandblasting still a good idea or there is some other method?	The removal of the concrete will damage the epoxy coating. Sandblasting the reinforcement will ensure it deteriorates uniformly in the future, or after sandblasting, place a new coating of epoxy paint on the reinforcement.	Jason DeRuyver
Lange	Will these slides be made available to attendees?	Yes, the presentation and recording will be published to the local agency working group website. <a href="https://www.pavementpreservation.org/video_library/bridge/Local_Agencies_(Sorted).html">https://www.pavementpreservation.org/video_library/bridge/Local_Agencies_(Sorted).html</a> This presentation will be posted in two to three days	Travis Kinney, Hahn Patte
Lassila	Do you use bonding agents on the cold joints?	Each fast set is slightly different. The non-cementitious mixes (MMA, Epoxy, Polyester) typically have a primer that is required.	Jason DeRuyver
Nguyen	Thank you!		
Parakalla	For longevity, do you recommend silane or epoxy healer/sealer application?	Depends on your state's best practices and traffic. Thin Epoxy Overlays get 15 years.	Jason DeRuyver
Perry	What are anodes?	Zinc wrapped in a polymer. The old concrete and new concrete have differing chemistry and differing amounts of chlorides which can accelerate reinforcement deterioration. The anode absorbs that and sacrifices itself to save the reinforcement.	Jason DeRuyver
Profaizer	Will the presentation be made available?		
Schmitt	can you mastic over expansion joints on bridge decks?	I am not sure the context of this question. Feel free to email me at <a href="mailto:jason.deruyver@hdrinc.com">jason.deruyver@hdrinc.com</a>	Jason DeRuyver
Slack	Do you have to pour testing cylinders?	Our maintenance crews do not typically do cylinders on a regular basis. The MMA, Polyester and Epoxy rapid set materials use a different ASTM test for compression.	Jason DeRuyver
Slack	Would you actually patch that crack pictured? I would think that needs to be redone?	No. That last picture was of a box culvert end header cracked all the way through, and was not repairable.	Jason DeRuyver
Slack	Are anodes used in new construction or just patching/repair?	Just repairs	Jason DeRuyver
Tansey	Do you have any issues with the concrete joints reflecting through the HMA?	Depends. If the HMA is placed directly on the concrete - yes. If a properly designed underlayment is installed, then the crack is less likely. I have personally witnessed underlayments like a CRAFCO Ultraseal delay reflective cracking.	Jason DeRuyver

Warmington	nothing is being said atm, they were just talking about a min ago though		
Wolf	how does the longevity compare between rapid set concretes vs. longer cure times?	Low volume roads that do not require a quick turnaround for traffic, use standard concretes that you get in a truck. For very low volume or very shallow patches, uses a specialty mix.	Jason DeRuyver
Wolf	masteremaco N 425 is reliable for vertical and overhead concrete		
Workman	In your opinion what is more important to longevity of repair, surface preperation or curing methods? Asking to help better understand potential causes of some patch issues we have seen in our invenotry	Patch issues could be many things. Feel free to email me at jason.deruyver@hdrinc.com. When we have longevity problems in Michigan, it has been a material issues. The crews added too much water to the patch material to make it easier to work with, but the result was reduced durability.	Jason DeRuyver
olague	For overhead patching we have used shotcrete in Illinois		
zheng	Can I have the ppt? I was a little bit late and missed some portion. Thanks.	Check this website in a week or two for the presentation: <a href="https://www.pavementpreservation.org/video_library/bridge/Local_Agencies_(Sorted).html">https://www.pavementpreservation.org/video_library/bridge/Local_Agencies_(Sorted).html</a>	Travis Kinney
zheng	Is there PDH?	yes it will be emailed to you in a week or so	Hahn Patte
zheng	When can I receive it?	yes a certificate of attendance will be emailed in a week or so	Hahn Patte