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STRUCTURE BULLETIN

NCDOT Construction Unit

Website Email

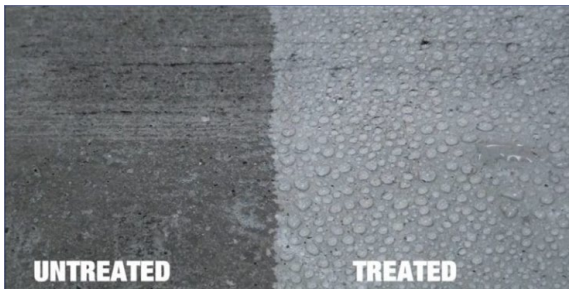
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Concrete Waterproofing Membranes

NCDOT has introduced a new Concrete Waterproofing Membrane provision for waterproofing new or existing concrete surfaces. This provision has already begun appearing in some contracts**,** so we want to make everyone aware of the new requirements and approved products. Currently, there are only two products on the Approved Products List (APL) that meet the requirements of this provision:

Chem-Crete Pavix & Alchemco BridgeDECK Waterproofing Agent

These products are similar to traditional silane sealers but utilize a different waterproofing mechanism. These products are designed to penetrate deeper into the concrete and react with moisture to provide waterproofing protection. According to the manufacturers, the products are reactivated when exposed to moisture and remain embedded within the concrete permanently. These products are intended to be a one-time application that provides long-term protection without the need for reapplication.



The new special provision establishes material and submittal requirements, surface preparation, and application limitations. Surface preparation generally consists of power washing, with abrasive blasting or cleaners required when existing coatings or sealers must be removed or heavy contaminants are present. Application consists of flooding or saturating the concrete surface with the product. The products are marketed as environmentally friendly and do not require specialized PPE beyond standard safety precautions. Traffic may be permitted on the treated surface as early as 3 hours after application. In addition to concrete decks or wearing surfaces, this product can also be used on vertical surfaces such as concrete barriers. NCDOT will continue to evaluate the effectiveness of these membranes so please provide feedback as you begin to use these products.

Approach Slab Bevel

The 45° bevel at the end of concrete approach slabs is intended to allow asphalt rollers to compact the asphalt closer to the approach slab without damaging the concrete or leaving an area of poorly compacted asphalt. The bevel should only be provided where asphalt pavement or walkways tie into the approach slab and should not extend beneath concrete elements such as curb and gutter, sidewalk, or barrier rail. **Some plans have mistakenly shown the bevel extending through these areas, creating construction issues where the concrete elements tie into the approach slab.** Review your plans to ensure the limits of the bevel correspond to the actual asphalt tie-in locations and do not extend into areas where concrete elements will be constructed.



Longitudinal Closure Pours – Common Issues

Whether it's phased deck construction or bridge widenings, longitudinal construction joints can be one of the most challenging parts of superstructure construction to execute correctly. We commonly encounter cracking, rebar cover issues, as well as inconsistent profiles, cross slopes, and rideability issues. These issues have required additional grinding, class II repairs, and in some extreme cases LMC or PPC overlays. Below are some common issues we are seeing and ways to help prevent them.

Cracking in Adjacent Pour

During deck placements adjacent to closure pours, contractors and inspectors sometimes stand on reinforcing steel extending into the closure. This can cause the bars to move within the freshly placed concrete, creating voids around the steel that can lead to cracking. These cracks require repair before placing the closure and can be avoided by keeping weight off the projecting steel during and after placement. A better approach is to install a work platform behind the edge forms that bears on the girders rather than the reinforcing steel.





Rebar Cover Issues

When rebar extends from the previous phase into the closure, it is commonly installed too high or too low. Use the buildups and pay close attention to the proper placement of the A bars along the closure pour to avoid having to sharply bend the steel up or down in the closure.

Hand Finishing

Since screeds cannot finish concrete all the way to the edge of a pour, hand finishing is required along the edges adjacent to closure pours. If not done carefully, this can create high or low areas that are often carried through when placing the closure pour, resulting in dips or bumps in the finished deck. To prevent this, mark the Top of Concrete elevation on the edge form and use a straightedge to verify that the proper deck cross slope is maintained all the way to the edge of the pour.





Videos:

The recorded videos of the 2026 Structure Inspector Training – Retaining Walls are available on our You Tube Training Video Playlist at this link.

Structure Inspector Training:

The 2027 Structure Inspector Training is currently being planned. Superstructures will be the primary topic for next year's training.

Structure Bulletins are archived on the Construction Unit website under Construction Resources.

Structure Bulletin Signup:

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