

# STRUCTURE BULLETIN

## NCDOT Construction Unit

[Website email](#)



### Current Issues:

Cored Slab Rotation During Tensioning:

Occasionally, when tensioning cored slabs, the exterior slab will lift up on the edge and rotate upward. This creates a gap between the slab and the bearing pad. If not corrected, this will leave the slab with an uneven distribution of its weight on the cap and cause additional stress on the slab and strand.

There are a few reasons that this could happen. We have seen some cored slabs that are not square or have bulges in the sides, which could cause this rotation to occur. M&T is aware of this and has made efforts to address this issue with the producers. If debris such as rocks, etc. are unknowingly lodged between the slabs, this could also be a potential cause. The most common cause of slabs not sitting level on the bearing pads is unevenly finished caps. Inspectors should use a straightedge (minimum of 4' but preferably a 10' straightedge) to check the caps before placing pads and slabs/box beams. This is very difficult to correct after the slabs are in place. If your caps are level and you still get rotation during tensioning, [Article 430-6\(B\)](#) states "if uplift at bearing location occurs at the bearing location, discontinue tensioning and consult with the Engineer." The Area Construction Engineer should be made aware of this issue, but in most circumstances, the solution will be to release the tension and then grout the exterior slab shear keys before re-tensioning. This should hopefully resist the rotation. In some cases, the Contractor may be allowed to grout all the shear keys before re-tensioning. These options can be discussed with the Area Construction Engineer. It is very important for the inspector and Contractor to physically go and observe the ends of the slabs during the tensioning in order to see if this uplift is occurring. As a reminder, NEVER stand in line with the strand during tensioning. Always observe from the side.



1. Current Issues: Cored Slab Rotation During Tensioning
2. Repair of Galvanizing
3. Curing Compound



### Repair of Galvanizing:

The standard specifications address the repair of galvanization throughout many sections of the book. [Article 1076-7](#) is the most thorough guidance for how to perform this repair. We often see contractors use aerosol cans of zinc repair paint. This is clearly **NOT** allowed by the specifications and inspectors should be on the lookout for this. The specs say to "spray using a non-aerosol spray, or brush-apply the paint to the cleaned areas with 2 coats of organic zinc repair paint meeting [Article 1080-7](#). Ensure that the total thickness of the 2 coats is not less than 3 dry mills. When using zinc repair paint, it is important to continually mix the paint to keep the zinc from settling to the bottom.

# Curing Compound: Why do we cure Concrete, and are we doing it right?

As we all know, concrete gets its strength and durability through a process known as hydration. This chemical reaction occurs within the cementitious materials in the concrete mix. The internal water within the concrete structure allows this process to take place and has a direct

correlation on how strong and permeable the concrete will be over time. If we allow loss of moisture through the curing process, the chemical



reactions will be slowed and the concrete will not perform as intended. This is why we cure our concrete. [Article 420-15](#) lists various approved methods of curing concrete for different applications. Today we will discuss curing compounds. [Article 420-15\(C\)](#) should be reviewed in detail, but it should be noted that the required rate of application is **one gallon per 150 square feet**. At this rate, it



should look like a painted wall. The coverage rate seen in the picture above is far too common on many of our structural members. This will not keep moisture from evaporating from within the concrete. So clean those nozzles, completely coat the concrete surface, check the application rate, leave the supersoakers for the kids, and let's not let the Roadway folks show us up.



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If you have a topic you would like to see in a future edition of the Structure Bulletin, please email us at [aeawood@ncdot.gov](mailto:aeawood@ncdot.gov)

## Videos:

Inspection training videos can be found on the [Construction Unit YouTube playlist](#).

## Training: TBD

Structure Bulletins are now archived on the [Construction Unit](#) website under [Construction Resources](#).

## Structure Bulletin Signup:

We are excited to release the new email signup list for the Construction Unit's Structure and Roadway Bulletins. This new signup will allow anyone interested in receiving the bulletins to sign up on their own. The link can be shared with anyone within your organization, and they can sign up to automatically be added to the distribution list. Even if you currently receive the bulletins, you will be required to sign up for the new list to continue to receive the bulletins. Please scan the QR code below to sign up for the new distribution lists to avoid missing any valuable information.

