

STRUCTURE BULLETIN

NCDOT Construction Unit

[Website email](#)

Current Issue: Tensioning Cored Slabs and Box Beams

In August of last year, updates were made to the 2024 Standard Specifications regarding tensioning procedures for cored slab and box beam bridges. They are as follows:

- Transverse strands are now required to be threaded through a **1" polyethylene pipe** so that strands can more easily be removed and replaced on future rehab projects.
- Double acting jacks shall have been calibrated within the past **12 months** and the Engineer shall be provided with a certificate of calibration that includes the calibration chart and curve. The certificate shall show that the jack and gauge to be used on the project were calibrated together.
- Strands shall be tensioned to **75%** of the 43,950 lb full load initially, then the keyways grouted. Once the grout reaches full design strength, tension the strands to 100% using the same tensioning order as the initial **75%**. This was revised from the initial 50% requirement in the specs.



If you have box beam or cored slab bridges under contract that were let prior to the August 2025 special provision change, and your slabs have yet to be tensioned, please reach out and discuss with your Regional Bridge Construction Engineer. The Department's preference is that the new 75%/25% tensioning specifications be utilized on all cored slab and box beam bridges moving forward.



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AASHTO Technical Training Classes for Structure Inspectors

AASHTO has several online class offerings available to help advance your knowledge of various structure inspection activities. Here is a list of some of the offerings along with the available PDHs for each class

- Pile Driving for Inspectors (4 PDHs)
- Drilled Shaft for Inspectors (4 PDHs)
- Inspection Safety for Bridge Construction (1 PDH)
- Structure Inspection: Superstructures (6 PDHs)
- Structure Inspection: Subsurface (4.5 PDHs)
- Structure Inspection: Substructures (3 PDHs)

There are other classes offered as well. All classes should be free with an NCDOT email account. You can set up an account and access the courses with the following link:

[AASHTO Technical Training Classes](#)

Structure Bulletin Signup:

Scan the QR code below to sign up for the distribution lists to avoid missing any valuable information.



Epoxy Injection – Port Installation

In the January 2023 Structure Bulletin, [Volume 7, Issue 01](#), we covered some epoxy injection best practices. In this issue, we are going to focus on the surface seal and port installation, both of which are critical to successful epoxy injection. Per the Epoxy Resin Injection Special Provision, these steps should be followed:

- A. Remove all dirt, dust, grease, oil, efflorescence and other foreign matter detrimental to the bond of the epoxy injection surface seal system from the surfaces adjacent to the cracks or other areas of application. Acids and corrosives are not permitted.
- B. Provide entry ports along the crack at intervals determined by the Contractor to ensure full penetration of the crack.
- C. Apply surface seal material to the face of the crack between the entry ports. For through cracks, apply surface seal to both faces.
- D. Allow enough time for the surface seal material to gain adequate strength before proceeding with the injection.
- E. Perform an air pressure check of the surface seal to ensure the system is airtight prior to proceeding with the injection.

On several projects lately, ports have been drilled into the structure as pictured below left. The epoxy was then attempted to be injected through these drilled-in ports.

Ports should never be drilled into the structure unless approved by the Engineer. Drilling the ports will most likely place the end of the port beyond the crack, or within only a portion of the crack. This will not produce the desired result of having the crack fully filled and will only lead to the crack being partially filled or not filled at all. Properly installed ports should be surface mounted and resemble the picture below on the right. You can also review the Epoxy Injection training video on YouTube [HERE](#).



IMPROPER DRILLED-IN PORTS



SURFACE MOUNTED PORTS

2026 Structure Inspector Training – Retaining Walls:

This year's structure inspector training focused retaining wall construction. Over 500 attendees took part in this year's classes which were held at 10 different sites across the state. The Department utilizes many types of retaining walls for highway construction, and this training covered the proper methods of construction for the most prevalent types used on current projects. Videos of the training for each wall type will be released later this summer for those who were not able to attend and for review on the NCDOT YouTube channel. If you have specific questions regarding the training, please contact your Regional Bridge Construction Engineer.

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