



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

JOSH STEIN  
GOVERNOR

J.R. "JOEY" HOPKINS  
SECRETARY

DATE: April 2, 2025  
FROM: Materials and Tests Unit, Manufactured Products Group  
SUBJECT: Acceptance Guidance for Concrete Reinforcement

**PURPOSE**

**This memorandum is intended to describe the required documentation and provide guidance to receive non-coated and coated reinforcing steel and composite reinforcement on projects.**

**DEPARTMENT APPROVED VENDOR (PRODUCER/SUPPLIER)**

The Materials and Tests Unit's Manufactured Products Group performs an independent review and approval of reinforcing steel, epoxy coated reinforcing steel, reinforcing steel-stainless, coated rebar fabricators, dowel baskets producer/suppliers, and composite reinforcement producers. Upon approval, each facility receives a Department Approved Facility Number. Producer/suppliers may have multiple Facility Numbers. A Facility Number must be present on the documentation that is discussed later in this memorandum.

Examples of Department approved producer/suppliers Facility Number formats:

- RS## Reinforcing Steel
- RSS## Reinforcing Steel-Stainless
- RC## Rebar Coaters
- CRF## Coated Rebar Fabricator
- DB## Dowel Baskets
- FRP## Fiber Reinforcement Products

NCDOT Approved producer/suppliers can be found on the webpage:

<https://apps.ncdot.gov/vendor/approvedproducts/Producer.aspx>

**MATERIAL ACCEPTANCE FOR STEEL REINFORCEMENT PRODUCTS**

The requirements of project acceptance procedures must be met for every Federal Aid and State funded project as described on the proceeding pages.

1. Reinforcing steel used for NCDOT work must be ASTM A615, Grade 60. The concrete pavement tie bars should be ASTM A615, Grade 40. Other grades and types of reinforcing steel may be required by the Special Provisions.
2. ALL shipments of reinforcing steel must include a NCDOT Type 1 certified mill test report (Melted and Manufactured in the U.S.A.) and a M&T form 913, ER-02 and/or DB-06 as applicable, see attached. Repairs to epoxy coated reinforcing steel are performed in accordance with Section 1070 of the *Standard Specifications for Roads and Structures*.
3. Sample both un-coated and coated bars of each size. Only one sample per size of the bar is needed. See below sample size and sample frequencies.
4. Contact Materials and Tests if you have questions and/or concerns with the material received.

### **MATERIAL SAMPLES**

- Samples are to be obtained and entered into HICAMS by project personnel or their designated representative, prior to submitting to the lab.
- The Department defines a reinforcing sample as the following:  
ONE SAMPLE IS DEFINED AS TWO PIECES OF REINFORCING STEEL CUT TO THIRTY-SIX (36") INCHES IN LENGTH.
- One sample per bar size of reinforcing steel for each contract material type for quantities  $\leq 1,000,000.00$  pounds and an additional sample for each 1,000,00.00 lbs. or fraction thereafter.
- The maximum bar size to be sampled is #11. Acceptance of reinforcing bars greater than #11, as well as all sizes of spiral reinforcing and/or fabricated (bent/hook) reinforcing shall be accepted by a NCDOT Type 1 certification and are not required to be sampled.
- Samples shall be taken from straight material delivered to the project site.
- **Precut "sample bars" are not acceptable as they are not "random and independent" verification of the shipment.**
- Samples are to be delivered to the lab as soon as possible for testing so as to not create undo project delays. Sample testing may take up to five (5) weeks to complete testing.

### **SMALL QUANTITY SAMPLES**

When accepting small quantity samples of reinforcing steel, the Resident Engineer may waive the sampling, however they will still need to obtain the minimum documentation required above. No more than five hundred (500 lbs.) pounds per project shall be accepted. The Material Received Report (MRR) shall state that the Resident Engineer accepted the reinforcing steel as a small quantity.

If there are questions concerning steel reinforcement, contact Aaron Dacey at [ahdacey@ncdot.gov](mailto:ahdacey@ncdot.gov), or Randy Porter at [srporter@ncdot.gov](mailto:srporter@ncdot.gov).

## **MATERIAL ACCEPTANCE FOR FIBER REINFORCEMENT PRODUCTS**

### *Acceptance Procedures for Carbon Fiber Reinforced Polymer Strand*

1. The shipment of CFRP shall come from a Department approved fiber reinforcement (FRP##) producer/supplier and be of the grades and types required by the Special Provisions
2. All shipments of fiber reinforcement must include a Type 2 Certification per spool.
3. Project personnel must take one sample per spool of the reinforcement in the shipment. Samples are to be obtained and entered into HICAMS by project personnel or their designated representative, prior to submitting to the lab.
4. Only one sample per spool is needed with a sample defined as two (2) discrete sections of strand that are each seven (7) feet in length.
5. Contact Materials and Tests if you have questions and/or concerns with the material received.

### *Acceptance Procedures for Fiber Reinforced Polymer Bar*

*FRP bars may be manufactured from Carbon, Glass, or Basalt Fiber – Procedures are the Same for Each*

1. The shipment of FRP shall come from a Department approved fiber reinforcement (FRP##) producer/supplier with a minimum Tensile Modulus of 8,700 ksi or of the grades and types required by the Special Provisions.
2. All shipments of fiber reinforcement must include a Type 2 Certification for each size and lot number.
3. Project personnel must take one sample per size and lot number of the reinforcement. Samples are to be obtained and entered into HICAMS by project personnel or their designated representative, prior to submitting to the lab.
4. One sample is defined two (2) straight bars with minimum lengths of 77 inches per bar size and a minimum of two (90-degree) bent bars per bar size from each lot number with minimum required leg lengths of 6 ft and 1 ft respectively.
5. Contact Materials and Tests if you have questions and/or concerns with the material received.

**Note:** Never field bend or straighten, couple, thermal cut or shear cut GFRP reinforcing bars.

**Precut “sample bars” are not acceptable as they are not “random and independent” verification of the shipment.**

Samples are to be delivered to the lab as soon as possible for testing so as to not create undo project delays.

## **SMALL QUANTITY SAMPLES**

When accepting small quantity samples of fiber reinforcement, the Resident Engineer may waive the sampling, however they will still need to obtain the minimum documentation required above. No more than two hundred fifty feet (250 feet) per project shall be accepted. The Material Received Report (MRR) shall state that the Resident Engineer accepted the fiber reinforcement as a small quantity.

If there are questions concerning composite reinforcement, contact Natalie Bravo at [rnbravo@ncdot.gov](mailto:rnbravo@ncdot.gov) or Cabell Garbee at [cgarbee@ncdot.gov](mailto:cgarbee@ncdot.gov).

Sincerely,

Signed by:

*Matt Hilderbran*

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**Matt R. Hilderbran, PE, CPM**  
State Field Operations Manager

cc: Associated General Contractors  
Reinforcing Steel Suppliers  
Rebar Coaters  
Reinforcing Steel-Stainless Suppliers  
Coated Rebar Fabricators  
Composite Reinforcing Suppliers  
Division Engineers  
Resident Engineers  
Materials and Tests Unit  
Structures Management Unit

Attachments:

M&T Form 913  
M&T ER-02  
M&T DB-06

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
MATERIALS AND TESTS UNIT

Fabricator's Heat Number Identification of Reinforcing Bars

Date: \_\_\_\_\_

Fabricator: \_\_\_\_\_

Plant Location: \_\_\_\_\_

Project: \_\_\_\_\_

County: \_\_\_\_\_

Station Number: \_\_\_\_\_

The following table itemizes the heat numbers and heat number identifications such that each heat number involved may be positively identified and separated, if necessary, at the destination.

Bar List Or Order Number	Bar Type Or Mark	Bar Size	Grade	Weight (Lbs./Kgs.)	Manufacturer, Mill Location and Mill Mark Symbol	Heat Number

I hereby certify that no heat numbers other than those tabulated above were incorporated within this shipment, that the fabricated steel conforms to the plans and specifications in grade, size, and dimensions and that all steel was melted and manufactured in the USA.

Signature of Authorized Representative: \_\_\_\_\_

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
MATERIALS AND TESTS UNIT**

**Epoxy Coated Reinforcing Steel Shipping Report**

<b>Date:</b>		<b>Contractor:</b>	
<b>Plant:</b>		<b>Plant Location:</b>	
<b>Project:</b>		<b>Station:</b>	
<b>Job #:</b>		<b>Structure Number:</b>	
<b>County:</b>			
<b>Fabricator:</b>			

Rebar Size	Grade	Rebar Manufacturer	Heat Number	Epoxy Coated By	Epoxy Powder Batch #	Weight Lbs./Kgs

Total weight represented by this report:

\_\_\_\_\_  
(Each shipment requires a separate report.)

I hereby certify that the above material was coated and fabricated in accordance with the North Carolina Department of Transportation Standard Specifications and Supplemental Contract Special Provisions and all steel was melted and manufactured in the USA..

\_\_\_\_\_  
Signature of Authorized Representative:

I hereby certify that I have made final inspection of the above load of epoxy coated reinforcing steel, and to the best of my knowledge, all pieces meet the requirements of the specifications.

\_\_\_\_\_  
Signature:

Mill test reports and certifications are retained by NCDOT Materials and Tests Unit.

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**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
MATERIALS AND TESTS UNIT**

**Dowel Basket Fabrication Report**

<b>Date:</b>		<b>Contractor:</b>	
<b>Plant:</b>		<b>Plant Location:</b>	
<b>Project:</b>		<b>Station:</b>	
<b>Job #:</b>		<b>Structure Number:</b>	
<b>County:</b>			
<b>Fabricator:</b>			

Basket Height	Dowel Diameter	Dowell Grade	Heat Number	Epoxy Coated By	Epoxy Powder Batch No.	Expansion	Contraction

**Total number of baskets or  
loose dowels represented by  
this report:**

\_\_\_\_\_  
(Each shipment requires a separate report.)

**I hereby certify that the above material was coated and fabricated in accordance with the North Carolina Department of Transportation Standard Specifications, Standard Drawings, and Supplement Contract Special Provisions and that all steel was melted and manufactured in the USA.**

\_\_\_\_\_  
Signature of Authorized Representative