

## **REINFORCING STEEL**

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Acceptance procedures for reinforcing Steel differ depending on if the steel is Uncoated or Coated.

### **Uncoated Reinforcing Steel:**

Uncoated reinforcing steel can be accepted in two different ways:

1. If the shipment of uncoated reinforcing steel includes a correctly completed copy of the Materials and Tests Unit Form 913 (copy attached), no sampling is necessary. Note that the quantities on the Form 913 must match or exceed the quantities of each size of reinforcing bar reported on the corresponding Material Received Report (MRR). If the Materials and Tests Unit Records Section cannot reconcile the quantities, the MRR will be sent back to the Resident Engineer for clarification or additional information.
2. If the shipment does not include a Form 913, Division Personnel must take a sample of each size of reinforcing steel in the shipment. A sample is defined as two pieces of steel at least thirty inches long. The sample should come from steel actually used in the project and the sample bars should be replaced by splice bars of sufficient length to get a splice distance of at least 30 diameters on each end. Splice bars are not to be used as sample bars. No payment will be made for the samples or splice bars.

### **Coated Reinforcing Steel:**

Coated Reinforcing Steel is pre-inspected by Materials and Tests Unit technicians or by inspection companies under contract to Materials and Tests. All shipments of coated reinforcing steel will include a Form 913 as well as inspection documents for the coating. Coated reinforcing steel will also be tagged approved and no acceptance sampling is necessary.

### **Small Quantities:**

When accepting small quantities of reinforcing steel, the Resident Engineer may waive these procedures. No more than approximately 350 pounds per project should be accepted this way and the MRR must state that the Resident Engineer accepted the reinforcing steel as a small quantity.

### **Independent Assurance Sampling of Reinforcing Steel:**

Independent Assurance samples are required for reinforcing steel on Federal Aid projects only.

These samples are taken by the Materials and Tests Concrete Technician during visits to the project.

- One set of samples shall be taken for the first 40 tons of reinforcing steel used on the project.
- If the project has more than 400 tons, 2 sets of samples are required.  
(A set of samples is two 30-inch long bars of each size used on the project.)

Samples of uncoated reinforcing steel are to be taken from bars actually used on the project. These bars are to be replaced by splice bars of sufficient length to ensure a splice length of at least 30 diameters. Splice bars are not to be used as sample bars and no payment will be made for either the sample bars or the splice bars.

## **REINFORCING STEEL (CONT.)**

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However, Independent Assurance samples of coated reinforcing steel are taken by Materials and Tests Unit representatives at the coating or fabrication plant at the same frequency as above. They are then shipped to the project along with the coated reinforcing steel used on the project. The samples are taken at random and will come to the project marked as Independent Assurance samples. The Materials and Tests Concrete Technician will pick up the samples on the project site. As these are the sample bars, no cutting or spicing of coated reinforcing steel is necessary.

Note that it may not be necessary to take Independent Assurance samples of both coated and uncoated bars. If there are coated and uncoated bars of the same size on the project, only one sample of that size is needed. Since the coated samples have already been taken before shipment to the project, it would be easier to let the Materials and Tests Concrete Technician take the coated bars as the Independent Assurance samples.

### **GENERAL NOTES:**

- ALL shipments of reinforcing steel must include a Certified Mill Test Report.
- With the sole exception of tie bars for concrete pavement, all reinforcing steel used for NCDOT work must be Grade 60. Concrete pavement tie bars should be Grade 40.
- Acceptance sampling and Independent Assurance sampling of reinforcing steel have no relation to each other. The sampling requirements of both procedures must be met for every Federal Aid project.

If you have any questions, please contact David Greene at (919)733-7091.