

<b>OFFICE OF STATE AID ROAD CONSTRUCTION</b>			S.O.P. NO. SA II-3-15
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Subject: S.O.P. REINFORCING STEEL			Distribution A, B, C, D, E
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**PURPOSE:** To Establish Uniform Procedures For The Sampling, Testing, Acceptance And Reporting Of Reinforcing Steel For Use In State Aid Work.

1. GENERAL:

- 1.1. Reinforcing steel may be shipped to State Aid projects as pretested or untested materials. It shall be the responsibility of the County/LSBP Engineer to ascertain the test status of each shipment of reinforcing steel.
- 1.2. Hereinafter, when company (or companies) is referred to, it will be understood to mean the fabricator (or fabricators) who supplies the reinforcing steel to the project. The fabricator may be categorized in one of the following:
  - 1.2.1. Purchases all steel from various manufacturers of reinforcing steel.
  - 1.2.2. Purchases part of the steel from other manufacturers and manufactures part of it himself.
  - 1.2.3. Uses only the steel that he manufactures.
  - 1.2.4. A company is further defined as the one who bends the steel to the shapes as shown on the plans and/or cuts straight steel to the lengths specified on the plans.

2. PRETESTED REINFORCING STEEL:

Reinforcing steel shipped as pretested material shall meet all requirements as set forth herein.

- 2.1. A company proposing to furnish pretested reinforcing steel for use in State Aid work shall have been approved and their name placed on the MDOT Approved Sources of Materials List by the MDOT Central Laboratory.
- 2.2. In order for a company to have its name placed on this approved list, the company must state agreement with and acceptance of the provisions of MDOT S.O.P.(TMD-31-01-00-000M) by letter addressed to the MDOT Materials Engineer. Also, in this letter the company must certify that the steel furnished will meet all applicable requirements of the Mississippi Department Of Transportation specifications and that only domestic steel will be used. This letter will remain in effect until rescinded in writing.
- 2.3. The company shall provide a re-certification of domestic origin at least annually to the MDOT Central Laboratory. Such certification shall contain the following or similar wording:

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2.3.1. Certification From Manufacturers: "We hereby certify that any and all reinforcing steel supplied by \_\_\_\_\_ (Name of Steel Mill) \_\_\_\_\_ for use on Mississippi Department of Transportation projects will be manufactured in our plant located at (City & State) and will be made with domestic steel only."

2.3.2. Certification From Companies Other Than Manufacturers: "We hereby certify that any and all reinforcing steel processed and supplied by (Name of Company) located at (City & State) for use on Mississippi Department of Transportation projects will be obtained from (Name & Location of Steel Mill) which is a MDOT-approved manufacturer, and we further certify that only reinforcing steel made from domestic steel will be supplied.

2.4. The company shall maintain a quality control program to detect and prevent the shipment of reinforcing steel having borderline or nonconforming characteristics.

2.5. It shall be understood that representatives of the Mississippi Department of Transportation shall have free entry on the premises to inspect the fabrication of reinforcing steel, to take samples of reinforcing bars in stock and to review records of quality control programs and tests.

2.5.1. The company shall take immediate action to correct irregularities reported by the MDOT.

2.6. Sampling: Each bar size and grade of each manufacturer of reinforcing steel will be randomly sampled by representatives of the Mississippi Department Of Transportation. The frequency of random samples will be at a predetermined rate as established by the MDOT Materials Engineer, based on the quantity produced, quality of the steel, and the frequency of shipments.

Normally, representatives of the MDOT Central Laboratory will perform all sampling, but on occasion, due to the location of the fabrication plant, amount and frequency of shipments, the Districts may be requested to perform this task.

2.6.1. For manufactured reinforcing steel bars containing a registered mill marking, the sample will be saw cut or sheared to a length of approximately 30 inches from material proposed to be used in State Aid work. The Mississippi Department of Transportation representative will observe the sample being cut, properly identify the sample, and prepare information card (TMD-320) with all pertinent information included thereon. If it is necessary to cut the sample with a torch, the length shall be approximately 42 inches.

For manufactured welded fabric (deformed or plain) units the sample shall be 1 s.y; or in the case of prefabricated bridge rail units, the sample shall be 3 feet in length.

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2.7. Testing: All acceptance testing of reinforcing steel will be performed by the MDOT Central Laboratory in accordance with established procedures of the specific test methods.

2.8. Shipping: It shall be the responsibility of the company to ascertain that the following provisions are complied with:

2.8.1. With each shipment, the company will furnish a copy of the shipping ticket designated for the County/LSBP Engineer. The shipping ticket shall include all pertinent information, such as project number, county, purchaser, number of pounds of each bar size, or prefabricated unit, grade and manufacturer (if fabricator is different from manufacturer).

The shipping ticket shall also include a statement to the effect: "This material was fabricated from Mississippi Department Of Transportation pretested stock", and must be signed by an authorized representative of the company.

2.8.2. Upon receipt of the company's completed shipping ticket, the County/LSBP Engineer will allow the steel to be used in construction unless visual inspection reveals questionable or inferior steel. If questionable or inferior steel is delivered to the project site, the County/LSBP Engineer shall immediately notify the MDOT Central Laboratory in order that corrective action can be taken. Questionable steel must be sampled, tested, and accepted prior to use. Inferior steel will be rejected without further testing.

2.8.3. All aforementioned requirements must be fulfilled; otherwise, the steel will be considered untested and will be sampled and tested accordingly (See Section 3 below).

2.9. Reporting: At least once each calendar week the company shall mail to the MDOT Central Laboratory a copy of each shipping ticket. The mailing address is:

State Materials Engineer (72-01)  
Mississippi Department Of Transportation  
P. O. Box 1850  
Jackson, Mississippi 39215-1850

Upon receipt of the shipping tickets, the necessary information will be recorded on Form TMD-481. Shipments to each project will be accumulated and reported semimonthly. The County/LSBP Engineer should receive a copy of Form TMD-481 within three (3) weeks of delivery of the steel.

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3. UNTESTED REINFORCING STEEL:

3.1. All untested steel shall be tested and accepted by the MDOT Central Laboratory prior to use. Any steel from a company not on the approved list or if the requirements of Section 2 above are not met, the steel will be considered untested. Upon determination that a shipment of steel is untested, the following conditions shall be met:

3.1.1. The County/LSBP Engineer, or his representative, will obtain one (1) sample in accordance with Subsection 2.6.1 above for each 10 tons, or fraction thereof, of each size of mill-marked steel. Care must be exercised to insure that the manufacturer's identification markings are contained within the sample length. The steel should be sampled immediately after delivery to the project and submitted to the MDOT Central Laboratory without delay.

Unmarked deformed steel bar units shall be sampled at the rate of one (1) sample for each 10 tons, or fraction thereof, of each size. The grade, size and fabrication dimensions shall be as specified by the project's documents. The grade and size shall be shown on the invoice. Information listed on the identification tags tied on the units shall match the items listed on the shipping invoice.

3.1.2. Each sample must be accompanied by Form TMD-320 properly completed.

3.1.3. As soon as possible after receipt of the samples, the MDOT Central Laboratory will test the bars and report the results.

3.2. Manufacturer's Certification: For each shipment of reinforcing steel from sources not on the MDOT approved list, the Contractor shall furnish the Department a certification of domestic origin from the manufacturer as required in Subsection 2.3 above.

4. RESPONSIBILITIES OF COUNTY/LSBP ENGINEER:

4.1. Pretested Reinforcing Steel

4.1.1. Prior to allowing the use of a shipment of pretested reinforcing steel, obtain a copy of the shipping ticket and make sure the ticket meets all requirements set out in this S.O.P. Any irregularities must be corrected prior to allowing the use of the shipment; otherwise, the shipment will be considered as untested steel and its acceptance will be determined in accordance with Section 3 above.

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- 4.1.2. Prior to allowing the use of a shipment of mill-marked prestressed reinforcing steel, inspect the shipment paying particular attention to the mill markings for proper grade, size and MDOT's approved fabricator and/or manufacturer of the steel. Make sure the shipment is accurately identified on the shipping ticket by grade, size and manufacturer. The shipment will be rejected if it contains the wrong size, grade, or foreign steel. Other irregularities found during the inspection must be corrected prior to allowing the use of the shipment; otherwise, the shipment will be considered as untested steel, and its acceptance will be determined in accordance with Section 3 above.

Note: Most reinforcing steel manufacturers register their identification markings (mill markings) with the Concrete Reinforcing Steel Institute (CRSI) and are displayed in CRSI Manual of Standard Practice. Do not rely completely on tags attached to bundles of steel. Additional excerpts from the CRSI Manual are available from the MDOT Central Laboratory as needed.

Prior to allowing the use of a shipment of prestressed welded fabric reinforcing steel, inspect the shipping invoice for a statement that the material was shipped from prestressed stock. Each prefabricated unit will have a MDOT seal attached to it; otherwise, the shipment will be considered as untested steel and its acceptance will be determined in accordance with Section 3 above.

- 4.1.3. For federal projects that are non-exempt, notify the MDOT Independent Assurance Sampler as soon as possible of the arrival of steel shipments so that Independent Assurance Verification sampling and testing can be initiated at the earliest possible time. The MDOT Central Laboratory will notify the County/LSBP Engineer immediately, followed by test reports of any failed steel samples. Upon receipt of notice of an Independent Assurance Sample failure, the County/LSBP Engineer will suspend operations and determine the acceptability of the steel as required in Section 3 above. If project acceptance samples fail, the steel is rejected subject to retests in accordance with Section 5 above.

The County/LSBP Engineer will make a determination of the amount of steel, if any, represented by a failing test report(s) that has been incorporated into the work. The acceptability of such steel to remain in-place will be determined in accordance with Subsection S-105.03 of the Standard Specifications.

- 4.2. Untested Reinforcing Steel: The County/LSBP Engineer will determine acceptability of such steel in accordance with Section 3 above prior to allowing its use in the work.

## 5. RETESTS

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Retests for determining the acceptability of reinforcing steel represented by a failing test report will be permitted under the conditions set out in AASHTO: M 31.