

# METALS

DOTD Designation: S 501-99

## I. General

### A. Equipment

1. Sample sacks, string, tamper-proof stickers, suitable markers for identification, or other suitable sample containers.
2. Cutting device suitable for obtaining samples from reels, rolls, or selected lengths of material.
3. Other miscellaneous items such as tape or wire in order to secure samples by wrapping or tying.
4. MATT forms, envelopes and tape for securing to sample container.

### B. Safety Precautions

It is the responsibility of the user of this sampling method to establish appropriate safety practices including, but not limited to, handling heavy loads and sharp metallic objects.

## II. Individual Items, Sets, Bundles or Containers

- A. Randomly select the individual item, set, container, or bundle to be sampled. Examples of such items are: metal chairs, load transmission devices, nuts, bolts, washers, stirrups, tie bars, miscellaneous fence materials, etc.
- B. If the material is received in either containers or bundles, or if the material is fabricated to preformed sizes or lengths that exceed the required sample size, randomly select a length of material and cut a sample of the required size.
- C. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.

## III. Materials on Reels or Rolls

- A. Randomly select the reel or roll to be sampled.
- B. Discard the first portion of the reel or roll (one complete wrap) prior to sampling.
- C. To prevent strands of material, such as wire rope, from unraveling when cut, tie or wrap the ends with thin wire or adhesive tape prior to cutting. Wrap the sample at least one inch from each end.
- D. Where practical, roll the sample tightly without creasing.
- E. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.

## IV. Miscellaneous Items (Structural Shapes, Plates, Bars, etc.)

- A. Cut samples of the required size from pieces selected at random from material representative of the finished product.
- B. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.

**V. Reinforcing Bars**

**A. District Truck Delivery of Samples**

1. Saw cut or shear cut or select samples from each size and grade bar.
2. Cut the necessary samples from the long lengths of material. Do not submit the short lengths or pieces marked "for test purposes."
3. If the material is fabricated to preformed shapes or lengths that do not meet the required sample length, randomly select a minimum of two samples to meet the required sample frequency (e.g. curb or tie bars).
4. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.
5. Transport by DOTD personnel to the District Laboratory for delivery to the Materials and Testing Section by the district truck.

**B. Bus Delivery of Samples (In Critical Emergency Situations)**

1. Saw cut or shear cut or select samples from each size and grade bar.
2. Cut the necessary samples from the long lengths of material. Do not submit the short lengths or pieces marked "for test purposes."
3. If the material is fabricated to preformed shapes or lengths that do not meet the required sample length, randomly select a minimum of two samples to meet the required sample frequency (e.g. curb or tie bars).
4. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.
5. Transport by DOTD personnel to the bus station for delivery to the Materials and Testing Section.
6. Require contractor to assume responsibility of expenses incurred in this method of shipping.

**C. Contractor Delivery of Samples (In Critical Emergency Situations)**

1. Saw cut or shear cut or select samples from each size and grade bar.
2. Cut the necessary samples from the long lengths of material. Do not submit the short lengths or pieces marked "for test purposes."
3. If the material is fabricated to preformed shapes or lengths that do not meet the required sample length, randomly select a minimum of two samples to meet the required sample frequency (e.g. curb or tie bars).
4. Have the DOTD inspector label the samples with tamper-proof stickers (see Figure 1) showing the date and time of sampling and the signature of the inspector. (These stickers are available from the Materials and Testing Section).

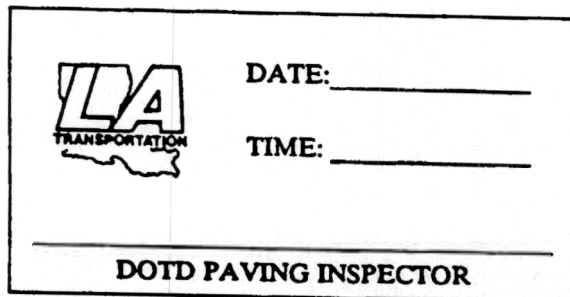


Figure 1: DOTD Tamper-Proof Sticker

5. Where practical, place sample into sample sack or other suitable container. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample.
6. Give the properly identified samples to the contractor or an authorized employee of the contractor for delivery to the Materials and Testing Section.
7. Instruct the contractor or an authorized employee to deliver the samples in person to the Engineering Materials Manager of the Physical Laboratory at the Materials and Testing Section and identify himself as the contractor or his employee.
8. Inform the contractor that if, upon receipt of the sample by the Physical Laboratory, it is discovered that the tamper proof label is missing, improperly completed or altered, the sample will not be accepted and the Project Engineer or inspector will be notified by the Physical Laboratory Engineering Materials Manager via telephone.

#### **VI. Reinforcing Mesh**

- A. Cut samples from randomly selected rolls or pieces of steel pavement fabric.
- B. For rolled mesh, discard the first portion of the roll when practical.
- C. Do not bend the samples or handle in a manner which would be detrimental to the welded joints.
- D. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample container. Place a copy of the identification form into the container with the sample. Transport the sample to the District Laboratory for delivery to the Materials and Testing Section by the district truck.

#### **VII. Splicing Reinforcing Bars (Mechanical Butt Splicing Systems)**

##### **A. Qualification Testing**

1. Require the contractor to instruct the personnel designated as splicers to make the specified test splices in the presence of the engineer.
2. Make certain that the splicing system and the reinforcing bars used for the test splices are the same as those intended for use on the project. Require the contractor to obtain qualification for each manufacturer's make and deformation pattern should more than one make or pattern be used on the project.
3. Obtain samples to include the splice and 18 in. of the rebar on both sides of the splice.
4. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample. Transport the sample to the District Laboratory for delivery to the Materials and Testing Section by district truck.

##### **B. Acceptance Testing**

1. Require the contractor to furnish all required test splices which have been made in the presence of the engineer and spliced in sequence and in the same manner as production splices.
2. At the option of the engineer, the sample splices may be cut from actual production splices on the job in lieu of making companion splices.
3. Obtain samples to include the splice and 18 in. of the rebar on both sides of the splice.
4. Place a properly completed, unsoiled identification form into an envelope and securely attach to the sample. Transport the sample to the District Laboratory for delivery to the Materials and Testing Section by the district truck.