

1605 - REINFORCING STEEL SPLICES

SECTION 1605

REINFORCING STEEL SPLICES

1605.1 DESCRIPTION

This specification covers devices and systems for splicing steel bars for concrete reinforcement.

Thermomechanical splices are produced by a process that introduces molten filler metal into an annular space around the bars created by a high strength steel sleeve of larger diameter than the bars.

Make the mechanical splices with any mechanical device or system which will meet the physical requirements cited below.

1605.2 REQUIREMENTS

When tested in tension, develop all splices to at least 125% of the minimum yield strength specified for the bars being spliced.

After loading in tension to 30 ksi then relaxing to 3 ksi, the total slip of the bar within the splice sleeve shall not exceed 0.01 inch for #14 bars and smaller, and 0.03 inch for #18 size bars. Displacements will be measured between gage points clear of the splice sleeve.

For those splicing systems to be prequalified in the "fatigue resistant" group, provide splices capable of withstanding a load range of 12 ksi (3 ksi to 15 ksi, tension) for a minimum of 1,000,000 cycles.

Prepare and mount splices on bars in a fabricator's shop for shipment to the project that meet **SECTION 1601** including prequalified plant status.

1605.3 TEST METHODS

Splicing devices or systems will be tension tested according to the procedures of AASHTO M 31, "Deformed and Plain Carbon Steel Bars for Concrete Reinforcement" and slip tested according to **subsection 1605.2**.

1605.4 PREQUALIFICATION

Prepare 3 fully assembled test specimens each for bar sizes number 4, 6 and 8, and forward them to the Engineer of Tests along with the following information:

- Name, address and telephone number of the manufacturer. Include the name of the preferred contact person.
- Brand name of the splice.
- Type and description of the splice.
- Information regarding recommended usage and splicing instructions.
- Material Safety Data Sheets (if applicable).
- For those splicing systems to be prequalified in the "fatigue resistant" group, submit test results from an independent testing laboratory demonstrating that the splice meets the fatigue requirements described above. Test splices for #4, #8, and #11 size, Grade 60 reinforcing steel. These sizes represent the small, medium, and large sizes common in construction.

Exceptions to the bar sizes specified above may be authorized by the Engineer of Tests.

The samples provided will be tested to destruction and test reports prepared. During testing, the Engineer of Tests will determine if operator prequalification is required for field and/or fabricator shop splicing, and enter that information on the test reports. The test reports and the information supplied will be reviewed by the Bureau Chief of Construction and Materials. The manufacturer will be advised as to whether or not the product is prequalified.

The Bureau of Construction and Materials will maintain a list of prequalified splicing systems. Products will remain prequalified as long as the manufacturing processes remain unchanged, and field experience indicates that the product functions appropriately. Changes in manufacturing processes require new prequalification testing. Failure of the product to function appropriately in the field will be cause for removal from prequalified status. Products removed from prequalified status will be considered for requalification if the manufacturer can provide

1605 - REINFORCING STEEL SPLICES

evidence that the cause of failure has been positively identified, and necessary changes and quality control measures have been implemented to eliminate that cause. Complete prequalification testing will be required for products that have been removed from prequalified status.

1605.5 BASIS OF ACCEPTANCE

Prequalification as specified in **subsection 1605.4**.

Receipt and approval of a Type C certification as specified in **DIVISION 2600**.

Satisfactory results of testing by lot during construction, as outlined in **DIVISION 700**. Samples submitted should be fully assembled in the field by personnel that will be performing the assembly operation.