

737-B-188 WELDED WIRE REINFORCEMENT

(Adopted 11-16-11)

The Standard Specifications are revised as follows:

SECTION 737, BEGIN LINE 1, INSERT AS FOLLOWS:

SECTION 737 - WELDED WIRE REINFORCEMENT, WWR

737.01 Description

This work shall consist of furnishing and placing WWR as an alternative to furnishing and placing reinforcing bars in concrete superstructures, reinforced concrete bridge approaches, crash walls, and cast-in-place retaining walls in accordance with 105.03.

MATERIALS

737.02 Materials

Materials shall be in accordance with the following:

Steel WWR, Deformed.....910.01(b)6
Steel WWR, Smooth.....910.01(b)5

CONSTRUCTION REQUIREMENTS

737.03 Design Requirements

The nominal yield strength shall be the minimum as specified for the grade of steel selected, except that the maximum nominal yield strength used for design purposes shall not exceed 75 ksi (520 MPa). The nominal yield strength shall not be less than 65 ksi (450 MPa) for smooth WWR and 70 ksi (480 MPa) for deformed WWR. The area of steel in the longitudinal and transverse directions may be reduced in proportion to the nominal yield strength specified for the grade of steel up to the maximum allowable. For purposes of crack control, spacing of reinforcement in the WWR sheet shall not be greater than 8 in. (200 mm) in either direction.

If the plans show uncoated reinforcing bars, the Contractor shall use uncoated WWR. If the plans show epoxy coated reinforcing bars, the Contractor may elect to supply either epoxy coated or galvanized WWR.

737.04 Working Drawings

Working drawings shall be submitted for approval in accordance with 105.02. Fabrication shall not begin until the working drawings are approved.

737.05 Fabrication

WWR shall be cut and bent to the shapes shown on the working drawings. All WWR shall be cold bent, unless otherwise permitted by the Engineer. Hook dimensions and diameters of bends shall be as shown on the working drawings. WWR partially embedded in concrete shall not be field bent, except as shown on the approved working drawings or permitted by the Engineer. Coated WWR shall not be field cut, unless permitted by the Engineer. If permitted, field cutting of coated WWR shall be performed

using hydraulic-powered or friction cutting tools to minimize coating damage and field touch-up. Field cut coated WWR shall be repaired with compatible patching material that is deemed suitable for repairs in the field. Flame cutting of coated WWR will not be permitted.

737.06 Handling and Storage

All WWR shall be handled and stored by methods that will not damage the coating or WWR, and in accordance with the applicable requirements of 703.04. Bundles shall not be dropped or dragged. WWR shall be transported and stored so as to not damage the applied coating. The coated WWR shall not be exposed to fire or flame.

Prior to placement of concrete, all WWR shall be free from dirt, loose rust or scale, mortar, paint, grease, oil, or other materials that can reduce bond. Coated WWR shall be free from cracks or laminations. For uncoated WWR, bonded rust, surface irregularities, or mill scale will not be cause for rejection, provided the minimum dimensions, cross sectional area, and tensile properties of the WWR specimen satisfy the physical requirements for the size and grade of WWR specified.

737.07 Placing and Securing

WWR shall be placed as shown on the approved working drawings and held in position during the placing and finishing of concrete. WWR shall be lapped and tied around the perimeter of each sheet in order to maintain proper positioning of the WWR. Lap splices shall have a minimum of two ties per spliced length. Unless otherwise shown on the approved working drawings, WWR sheets shall overlap a minimum of 8 in. (200 mm) in each direction to make a splice. Plastic or wire bar supports, such as chairs and bolsters, shall be in accordance with the requirements herein and industry practice as described in the Wire Reinforcing Institute, WRI, WWR-500, Manual of Standard Practice. All metal bolsters or chairs which bear against the forms for exposed surfaces shall be equipped with snug fitting, high density, polyethylene tips which provide 1/2 in. (13 mm) minimum clearance between the metal and an exposed surface. The spacing of slab bolster rows and high chair rows for deck slabs shall be as described in the WRI WWR-500, Manual of Standard Practice unless otherwise directed. For epoxy-coated WWR, tie wires, chair and bar supports, and metal clips shall be epoxy, plastic, or nylon coated. For galvanized WWR, tie wires, chair and bar supports, and metal clips shall be plastic coated or hot dipped galvanized after fabrication in accordance with ASTM A 1060. Tie-down bars shall be placed as shown on the approved working drawings. With the exception of tie-down bars, tack welding will not be permitted, unless shown on the approved working drawings.

WWR shall be supported in its specified position by use of plastic or wire bar supports, supplementary tie-down bars, side-form spacers, or other approved devices. Such devices shall be placed at intervals so as to maintain the WWR cover as shown on the approved working drawings. Platforms for the support of workers and equipment during concrete placement shall be supported directly by the forms and shall not alter the positioning of the WWR.

737.08 Repair of Coated WWR

All damaged, cut, or otherwise compromised areas of the coating shall be repaired.

(a) Epoxy-Coated

In addition to the requirements of ASTM A 884, all visible damage, including but not limited to scratches, nicks and cracks to the epoxy coating caused during shipment, storage, or placement shall be repaired on the project site with approved patching material. Ends of WWR that have been sheared, sawed, or cut by other means shall be coated with approved patching material. Areas on the WWR sheets and tie-down bars damaged due to welding shall be repaired with approved patching material. Patching of damaged areas shall be performed in accordance with the patching material manufacturer's recommendations. If the damaged surface area exceeds 10% of the total WWR sheet surface area, the sheet shall be removed and replaced with an acceptable sheet. All patching material shall be fully cured prior to placing concrete. Patching material shall be compatible with the epoxy coating, deemed inert in concrete, and deemed suitable for repairs in the field. Patching material shall be identified on the container as satisfying ASTM A 775, Annex A2, or shall be accompanied by a type C certification in accordance with 916 certifying that the material satisfies or exceeds the requirements of Annex A2.

(b) Galvanized

All visible damage, including but not limited to scratches, nicks and cracks to the galvanized coating caused during shipment, storage, or placement shall be repaired on the project site in accordance with ASTM A 1060. Ends of WWR that have been sheared, sawed, or cut by other means shall be coated. Areas on the WWR sheets and tie-down bars damaged due to welding shall be repaired and recoated. Field coating of damaged areas shall be performed in accordance with the coating manufacturer's recommendations. Galvanized coating shall be in accordance with ASTM A 1060. It shall be applied to achieve a dry film equal to or exceeding that designated in ASTM A 1060. All touchup coating material shall be fully cured prior to placing concrete.

737.09 Final Inspection

After being placed, WWR shall be subject to approval of the Engineer before beginning concrete placement. Concrete placed prior to approval of the WWR will be subject to rejection and removal.

737.10 Method of Measurement

This work will not be measured for payment.

737.11 Basis of Payment

The accepted quantity for payment will be the quantity for reinforcing bars or epoxy-coated reinforcing bars shown on the plans. This work will be paid for as reinforcing bars or epoxy-coated reinforcing bars in accordance with 703.08, regardless of whether the WWR design results in a reinforcement weight (mass) that is different from that shown on the plans.

If reinforcing bars or epoxy-coated reinforcing bars are not paid for separately, but instead included in the cost of a pay item, and WWR is substituted for reinforcing

bars or epoxy-coated reinforcing bars, the WWR will not be paid separately, but shall be included in the cost of the pay item.

If galvanized WWR is supplied, it will be paid for as epoxy-coated reinforcing bars.

The cost of tie wires, chair and bar supports, metal clips, spacers, or other mechanical means used for fastening or holding WWR in place, and laps shall be included in the cost of WWR. The cost of epoxy-coating materials or galvanizing materials and repair of damaged or removed coating materials on WWR and on tie wires, chair and bar supports, metal clips, spacers, or other mechanical means used for fastening or holding WWR in place, and laps shall be included in the cost of WWR.
