

TABLE OF CONTENTS

5.29 SUPPLY OF REINFORCEMENT ..... 1

5.29.1 GENERAL ..... 1

5.29.2 MATERIALS ..... 1

5.29.3 HANDLING AND STORAGE ..... 1

5.29.4 PLACING AND FASTENING ..... 1

5.29.5 SPLICING ..... 2

5.29.6 MEASUREMENT AND PAYMENT ..... 2

**5.29 SUPPLY OF REINFORCEMENT****5.29.1 GENERAL**

This specification is for the supply, fabrication, handling and placing of reinforcing steel. Reinforcement bars shall be supplied in the lengths and shapes, and installed as indicated on the drawings.

**5.29.2 MATERIALS**

All materials shall be supplied by the Contractor. Reinforcing steel shall conform to the requirements of the CSA Standard G30.18M Grade 400. All hooks and bends shall be bent using the pin diameters and dimensions as recommended in The Reinforcing Steel Institute of Canada, (RSIC), Manual of Standard Practice, 1 Sparks Ave, Willowdale, Ontario M2H 2W1, Phone: 416-499-4000, unless specified otherwise. Reinforcing bars shall conform accurately to the dimensions shown on the drawings and within the fabricating tolerance as shown in the RSIC, Manual of Standard Practice.

Epoxy coated reinforcing steel shall be prepared and coated according to the requirements of ASTM A775 and the Ontario Provincial Standard Specification OPSS 1442, Material Specification for Epoxy Coated Steel Reinforcement for Concrete. Film thickness of the coating, after curing, shall be 175 µm to 300 µm (7 to 12 mils). The epoxy coating material shall conform to the requirements of OPSS 1443, Material Specification for Organic Coatings for Steel Reinforcement.

Mesh reinforcement shall be supplied in flat sheets only.

**5.29.3 HANDLING AND STORAGE**

The Contractor shall handle and store the reinforcement in a manner that ensures it is not damaged or contaminated with dirt or other materials.

Special care shall be taken when handling epoxy-coated reinforcing steel so that damage to the coating is minimized. Epoxy-coated reinforcing bars shall not be dropped or dragged, and shall be lifted with non-metallic slings. Bar-to-bar abrasion and excessive sagging of bundles must be prevented, and bundles shall be handled with spreaders and non-metallic slings.

On site storage of the epoxy coated reinforcing steel shall not exceed 120 days, and exposure to daylight shall not exceed 30 days. If the exposure time exceeds or is expected to exceed 30 days, the reinforcing steel shall be protected by covering with opaque polyethylene sheeting or equivalent protective material.

The Contractor shall repair all damages to the epoxy coating using epoxy patching material. If damaged areas rust before being repaired, the rust shall be completely removed before the areas are repaired.

**5.29.4 PLACING AND FASTENING**

All steel reinforcement shall be accurately placed in the positions shown on the plans, and firmly tied and chaired before placing the concrete. When placed in the work it shall be free from dirt, detrimental rust, loose scale, paint, oil or other foreign material. Bars shall be tied at all intersections, except where spacing is less than 250 mm in each direction, when alternate intersections shall be tied.

Distances from the forms shall be maintained by means of stays, spacers, ties, hangers, or other approved supports. Spacers for holding reinforcement from contact with the forms shall be precast mortar blocks, or chairs of plastic or galvanized metal, of approved shape and dimensions. Any metal chairs protruding through the surface of the hardened concrete shall be cut back at least 25 mm, and the holes filled in accordance with Section 4.26(1), unless otherwise approved by the Consultant. Metal chairs shall not be used to support reinforcement on surfaces which are to be exposed or are to be finished; where possible, this reinforcement is to be supported entirely from above. Layers of bars shall be separated by precast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe, and wooden blocks, will not be permitted. Unless otherwise shown on the plans, the minimum distance between bars shall be 40 mm.

All chairs or bar supports for epoxy-coated reinforcement shall be non-metallic, or epoxy coated and be approved by the Consultant. Tie-wire for the coated reinforcement shall be plastic-coated.

Where field cutting of epoxy-coated reinforcing steel is necessary, and is approved by the Consultant, it shall be cut by methods other than torch-cutting. All cut ends shall be patched with epoxy patching material.

#### 5.29.5 SPLICING

Splicing of bars, unless shown on the plans, is prohibited except with the written approval of the Consultant. Splices, where possible, shall be staggered.

For lapped splices, the bars shall be placed in contact and wired together in such a manner as to maintain a clearance of not less than the required minimum clear distance to other bars, and the required minimum distance to the surface of the concrete. In general, suitable lap lengths will be achieved by the placing of bars of the lengths as detailed. Where the lap length cannot be determined, a minimum of 35 bar diameters lap length shall be provided.

Sheets of mesh or bar mat reinforcement shall overlap each other sufficiently to maintain a uniform strength and shall be securely fastened at the ends and edges. The edge lap shall not be less than one mesh in width.

#### 5.29.6 MEASUREMENT AND PAYMENT

The supply of plain reinforcing steel, the supply of epoxy coated reinforcing steel and the supply of mesh reinforcement will not be paid for separately but will be included in the unit price bid for the applicable structure containing the reinforcing materials.