

Technical Specification 026

CONCRETE REINFORCEMENT

1.0 General

- a) This specification gives general guidance and requirements for the structural reinforcement of poured in place concrete. Additional requirements may be required by the Engineer for the project and will be shown on the plans approved by the Engineer and Brunswick County.

2.0 Reference Standards and Specifications

- a) The latest editions of the reference standards listed below form a part of this specification and are applicable to this project.
- b) American Society for Testing and Materials:
 - 1) ASTM A- 615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 2) ASTM A -185: Specification for Welded Steel Wire Fabric for Concrete Reinforcement
- c) American Concrete Institute:
 - 1) ACI 315: Manual of Standard Practice for Detailing Reinforced Concrete Structures
 - 2) ACI 318: Building Code Requirements for Reinforced Concrete
- d) Concrete Reinforcing Steel Institute
 - 1) CRSI 163: Recommended Practice for Placing Reinforcing Bars
 - 2) CRSI 165: Recommended Practice for Placing Bar Supports, Specifications, and Nomenclature
- e) Brunswick County Technical Specification TS 027: Cast-in-Place Concrete

3.0 Submittals

- a) The general contractor, or utility contractor, shall submit the following items to the Engineer for review and approval prior to beginning work:
 - 1) Manufacturer's certificates giving the properties of steel proposed for use. List the manufacturer's test number and heat number, chemical analysis;

yield point, tensile strength and percent elongation. Also identify on the certificates the proposed location of the steel in the work.

- 2) Submit the bill of materials along with the shop drawings for review.
- d) Shop Drawings:
- 1) Submit shop drawings for proposed reinforcement materials. Show reinforcement fabrication, bar placement location, splices, and spacing and bar designation, bar type, length size, bending number of bars, and other pertinent information, including dimensions. Information must correspond directly to data listed on the bill of material.
 - 2) Provide sufficient detail to permit placement of reinforcement without use of design drawings. Reproduction of design drawings for use as shop drawings will not be allowed. Begin fabrication of reinforcing steel after shop drawings have been reviewed and approved by the Engineer.
 - 3) Refer to ACI reference for detailing, location, placing, splicing, etc. of reinforcing steel to be shown on shop drawings.

4.0 Handling and Storage

- a) Store steel reinforcement above the ground on platforms, skids or other supports. Protect reinforcing, as far as practicable, from mechanical injury, surface deterioration and rusting caused by exposure to the weather.

5.0 Materials

- a) Deformed Bars: Use deformed bars conforming to ASTM A- 615
- b) Marking: Clearly mark all bars with waterproof tags showing the number of bars, size, mark, length, and yield strength. Mark steel with the same designation as the member in which it occurs. Key marks to the concrete placement number as designated in the concrete placement sequence shown on the drawings.
- c) Welded Wire Fabric: Use welded wire fabric per ASTM A- 185
- d) Tie Wire: Use 18-gage annealed steel for tie wire.

6.0 Accessories

- a) Submit all accessory items, such as expansion joint fillers, joint sealing compounds, riser bars, bonding agents, crack fillers, primers, and other accessory items as a shop submittal to the Engineer for review and approval prior to beginning work on the project.

7.0 Notification

- a) Notify the Engineer at least twenty – four (24) hours before concrete placement so that reinforcement may be inspected and errors corrected without delaying the work.
- b) All reinforcement shall have a minimum two (2) inch clearance from all forms unless designed to protrude into a subsequent, adjacent, concrete pour.

8.0 Payment

- a) Include all work for concrete reinforcement in the unit cost for cast-in-place concrete. Separate payment will not be made for this item.