

SECTION 032015 – CONCRETE REINFORCEMENT FOR STEAM UTILITY DISTRIBUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this section.

1.2 SUMMARY

- A. This section includes the furnishing and placement of concrete reinforcement.
- B. Related sections include the following:
 - 1. Division 03 Section "Concrete Formwork for Steam Utility Distribution."
 - 2. Division 03 Section "Concrete Accessories for Steam Utility Distribution."
 - 3. Division 03 Section "Cast-In-Place Concrete for Steam Utility Distribution."

1.3 REFERENCES

- A. Except as herein specified or as indicated on the Drawings, the work of this section shall comply with the following:
 - 1. ACI:
 - a. 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
 - b. 315 - Details and Detailing of Concrete Reinforcement.
 - c. 315R - Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
 - d. 318 - Building Code Requirements for Reinforced Concrete.
 - 2. ASTM Specifications:
 - a. A 185 - Steel Welded Wire, Fabric, Plain, for Concrete Reinforcement.
 - b. A 615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 3. AWS:
 - a. D1.4: Structural Welding Code - Reinforcing Steel.
 - 4. CRSI:
 - a. Manual of Standard Practice.
 - b. Placing Reinforcing Bars.

1.4 SUBMITTALS

- A. Shop Drawings for concrete reinforcement to include:
 - 1. Number, size, length, mark, and location of concrete reinforcement.
 - 2. Bending diagrams.
 - 3. Prepare Shop Drawings in accordance with ACI 315 and 315R.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver reinforcement free of loose rust, scale, paint, oil and structural defects, and store on the site so as to maintain that condition.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General:
 - 1. All concrete reinforcement and accessories shall be new, free from rust, scale, paint, oil and structural defects.
 - 2. Reinforcement shall be the sizes indicated on the Drawings.
- B. Reinforcing bars:
 - 1. ASTM A 615.
 - 2. Yield stress: $F_y = 60,000$ psi.
- C. Welded wire fabric:
 - 1. ASTM A 185.
 - 2. Yield stress: $F_y = 65,000$ psi.
 - 3. Plain, cold drawn, electrically welded fabric.
- D. Accessories:
 - 1. Chairs, bolsters, anchors, spacers, stirrups, ties and all other devices as required for spacing and fastening reinforcement in place shall conform to CRSI Manual of Standard Practice.
 - 2. At exposed underside of concrete, use plastic-tipped chairs and bolsters.

2.2 FABRICATION

- A. General:
 - 1. Fabricate reinforcement to the dimensions indicated on the Drawings and the reviewed Shop Drawings.

2. Tolerances: As indicated in ACI 117.
 3. Bundle and tag reinforcement with suitable identification to permit checking, sorting and placing.
 4. Welding:
 - a. Not permitted, unless specifically indicated on the Drawings.
 - b. When permitted, comply with AWS D1.4.
- B. Hooks:
1. Bend hooks in accordance with ACI 318. Extension on 90 degree hook shall satisfy the requirements of a standard hook unless indicated longer on the Drawings.
 2. Cold bend bars in such a way that will not damage the reinforcement.
- C. Unacceptable materials:
1. Reinforcement with any of the following defects will not be permitted in the Work:
 - a. Bar lengths, depths and bends exceeding specified fabrication tolerances.
 - b. Bends or kinks not indicated on Drawings or final Shop Drawings.
 - c. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.1 PLACEMENT

- A. Place concrete reinforcement in accordance with:
1. Shop Drawings reviewed by Engineer.
 2. CRSI Placing Reinforcing Bars.
 3. ACI 117.
- B. Clearance:
1. Preserve clear space between bars of not less than 1 times the normal diameter of round bars.
 2. In no case let the clear distance be less than 1-inch or less than 1-1/3 times the maximum size of aggregate.
 3. In the absence of specific cover requirements on the Drawings, provide the following minimum concrete cover for reinforcement:
 - a. Cast against and permanently exposed to earth: 3 inches.
 - b. Exposed to earth, weather or water:
 - 1) No. 6 through No. 18 bars: 2 inches.

- 2) No. 5 bars, 5/8-inch wire and smaller: 1-1/2 inches.
 - c. Not exposed to weather or in contact with the ground:
 - 1) Slabs, walls, and joists:
 - a) No. 11 bars and smaller: 3/4-inch.
 - 2) Beams, girders, and columns: 1-1/2 inches.
 - C. Splices:
 1. Comply with ACI 318 and this section.
 2. In the absence of specific lap requirements on the Drawings, lap in accordance with ACI 318, Class B.
 - D. Corner bars:
 1. Provide corner bars for horizontal wall steel.
 2. In the absence of specific lap requirements on the Drawings, lap in accordance with ACI 318, Class B.
 - E. Field cutting and bending: Permitted only under special conditions approved by Engineer.
 - F. Field welding:
 1. In accordance with AWS D1.4.
 2. Only when specifically indicated on the Drawings.
 - G. Welded wire fabric:
 1. Block up, lap and tie welded wire fabric reinforcement.
 2. Lap welded steel fabric 6 inches at sides and ends.
 - H. Slabs on grade:
 1. For chairs or bolsters supported on soil, use either:
 - a. Chairs with sand plates.
 - b. Concrete bricks set flush with soil to provide bearing surface for chairs or bolsters.
- ### 3.2 FIELD QUALITY CONTROL
- A. Notification:
 1. Notify Engineer when reinforcing is in place so Engineer may review the reinforcement placement.

2. Provide a minimum of 24 hours notice prior to placement of concrete.

END OF SECTION 032015