

**SECTION 03 20 00
CONCRETE REINFORCEMENT**

PART 1 - GENERAL

1.01 RELATED SECTIONS

- A. Division 1 Sections
- B. Section 031000 – Concrete Forming and Accessories.
- C. Section 033000 – Cast-in-Place Concrete.

1.02 REFERENCES

ACI 117 – Standard Specifications for Tolerances for Concrete Construction and Materials.

ACI 301 – Standard Specifications for Structural Concrete.

ACI 315 – Details and Detailing of Concrete Reinforcement.

ACI 318 – Building Code Requirements for Structural Concrete.

ASTM A1064 – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete Reinforcement.

ASTM A615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

ASTM A706 – Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.

AWS D12.1 – Recommended Practices for Welding Reinforcing Steel Metal Inserts, and Connections in Reinforced Concrete Construction.

CRSI – Manual of Standard Practice.

1.03 SUBMITTALS

- A. Refer to Structural Quality Assurance Plan in the Structural Drawings for additional submittal requirements.
- B. Shop Drawings:
 - 1. Notify Structural Engineer prior to detailing reinforcing steel shop drawings.
 - 2. Indicate size, spacing, location and quantities of reinforcing steel and wire fabric, bending and cutting schedules, splice lengths, stirrup spacing, supporting and spacing devices. Detail reinforcing steel in accordance with ACI 315 and CRSI Standards.
 - 3. Written description of reinforcement without adequate sections, elevations, and details is not acceptable.
 - 4. Reproduction of Structural Drawings for shop drawings is not permitted. Electronic drawing files will not be provided to the Contractor.
- C. Submit manufacturer's data for tension and compression splicers.

1.04 QUALITY ASSURANCE

- A. Refer to the Structural Quality Assurance Plan in the Structural Drawings.

1.05 STORAGE AND PROTECTING

- A. Store reinforcing steel above ground so that it remains clean. Maintain steel surfaces free from materials and coatings that might impair bond.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Deformed Reinforcing Steel: ASTM A615, refer to Structural Drawings for grade (Grade 60 minimum).

2.02 ACCESSORY MATERIALS

- A. Annealed Steel Tie Wire: 16½ gage minimum.
- B. Bar Supports: Plastic-tipped steel Class I bar supports conforming to CRSI Specifications. Concrete brick may be used to support reinforcement to obtain proper clearance from earth.

2.03 SPLICERS

- A. Tension Splicers: Capable of developing 125% of the reinforcing steel ASTM specified minimum yield strength.
- B. Compression Splicers: Mechanical type such that the compression stress is transmitted by end bearing held in concentric contact.

2.04 DOWEL ADHESIVE

- A. Adhesive conforming to Simpson AT-XP (IAPMO-UES ER-263), Simpson SET-XP (ICC-ES ESR-2508), DeWalt/Powers Pure110+ (ICC-ES ESR-3298), DeWalt/Powers DeWalt AC200+ Adhesive (ICC-ES ESR-4027), Hilti HIT-HY 200 Safe Set Fast Cure Adhesive (ICC-ES ESR-3187), Hilti HIT-RE 500 V3 SAFE Set Adhesive (ICC-ES ESR-3814). Minimum Embedment = 12 times anchor diameter, UNO.

PART 3 - EXECUTION

3.01 FABRICATION

- A. Fabricate reinforcing steel in accordance with ACI 318 and CRSI standards.
- B. Bend bars cold. Do not heat or flame cut bars. No field bending of bars partially embedded in concrete is permitted, unless specifically approved Structural Engineer and checked by Testing and Inspection Agency for cracks.
- C. Weld only as indicated. Perform welding in accordance with AWS D1.4 and AWS D12.1.
- D. Tag reinforcing steel for easy identification.

3.02 INSTALLATION

- A. Before placing concrete, clean reinforcement of foreign particles and coatings.
- B. Place, support, and secure reinforcement against displacement in accordance with ACI 318 and CRSI standards. Do not deviate from alignment or measurement.
- C. Place concrete beam reinforcement support parallel to main reinforcement.
- D. Locate welded wire reinforcement in the top third of slabs. Overlap mesh one lap plus two inches at side and end joints.
- E. Furnish and install dowels or mechanical splices at intersections of walls, columns and piers to permit continuous reinforcement or development lengths at such intersections.
- F. Maintain cover and tolerances in accordance with ACI and CRSI Specifications, unless indicated otherwise on Structural Drawings.

3.03 SPLICES

- A. Do not splice reinforcement except as indicated on Structural Drawings.
- B. Tension couplers may be used and installed in accordance with manufacturer's recommendations.

3.04 DOWELS IN EXISTING CONCRETE

- A. Install dowels and dowel adhesive in accordance with manufacturer's recommendations.
- B. Minimum embedment length into the existing concrete shall be 12 bar diameters, unless noted otherwise.

END OF SECTION