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CONSTRUCTION SPECIFICATION  
INSTRUCTION FOR USE  
CS-OR-034 STEEL REINFORCEMENT

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034.1 APPLICABILITY

Construction Specification CS-OR-034 is applicable to the placement of steel bar reinforcement and steel welded wire reinforcement for reinforced concrete or pneumatically applied mortar.

034.2 MATERIAL SPECIFICATIONS

The following material specification complements Construction Specification CS-OR-034:

- a) MS-OR-539— Steel Reinforcement (for concrete)

034.3 INCLUDED ITEMS

Items to be included in contract specifications and drawings follow:

- (a) Complete placing drawings prepared by the designer or instructions for the contractor to prepare placement drawings with steel schedules from the engineering drawings.
- (b) Steel schedule and bar list with bending diagram if needed to facilitate the placement drawings. These items are generally needed for all except simple structures.
- (c) Type and grade of steel if the contractor's choice from the list in Material Specification MS-OR-539, Steel Reinforcement (for concrete) must be restricted.
- (d) Bar splice requirements are normally covered by the ACI Codes and should be referenced. Unique limitations or exceptions need be included to provide clarity.
- (e) Standard methods would include the following to be used to specify bar splice lengths. One of two methods can be used in specifying lap lengths at bar splices. The required information varies depending upon the method used.

**Method 1** — Show splice locations along with lengths of bars in a schedule that is adequate to meet the design requirements and criteria.

**Method 2** — Include the following:

1. Locations where splices are permitted or not
2. Type of splices at locations permitted: contact, noncontact, or butt

3. Splice layout at locations permitted: staggered or coincident and alternating or repeated.
4. Splice class for each respective location and mat
5. Concrete design compressive strength,  $f' c$
6. Bar stress condition: tension or compression
7. Designation of top bars and others
8. Steel reinforcement design yield strength

#### 034.4 METHODS

**Method 1** — Intended for use when construction drawings for reinforced concrete structures show bar placement details and steel schedules listing bar dimensions and bar shape. Splice locations and bar laps have been determined during design and fully detailed on the drawings. This method applies when national standard detail drawings are used.

**Method 2** — Intended for use when construction drawings do not contain complete bar placement diagrams and bar schedules. This method should be considered when quality control and other responsibilities are placed on the contractor.

Complete bar placement—Drawings and schedules should normally be included in all construction drawings. However, in such cases when engineering drawings are prepared by a project sponsor or an A-E firm and complete bar placement drawings and schedules are not provided, they may be prepared by the steel fabricator based on engineering drawings as shown in ACI 315.

#### 034.5 ITEMS OF WORK AND CONSTRUCTION DETAILS

Starting at the top of page 034–3, prepare and outline job specific "Items of Work and Construction Details" (IWCD) in accordance with these instructions.