

STEEL REINFORCEMENT

1. APPLICABILITY

Construction Specification 34 is applicable to the placement of steel bar reinforcement and steel welded wire fabric reinforcement for reinforced concrete or pneumatically applied mortar.

2. MATERIAL SPECIFICATIONS

Steel Reinforcement. Material Specification 539 is complementary to Construction Specification 34.

3. ITEMS TO BE INCLUDED IN CONTRACT SPECIFICATIONS AND DRAWINGS

- 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 are usually needed for all except simple structures.
- c. Type and grade of steel if it is necessary to restrict the Contractor's choice from the list in Material Specification 539.
- 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. There is an option to use one of two methods in specifying lap lengths at bar splices. The required information will vary depending upon the method used.

(1) Method 1 show splice locations along with lengths of bars in a schedule that is adequate to meet the design requirements and criteria.

(2) Method 2 include the following:

- (a) Locations where splices are permitted or not.
- (b) Type of splices at locations permitted contact, non-contact or butt.
- (c) Splice layout at locations permitted staggered or coincident and alternating or repeated in Section 10.
- (d) Splice class for each respective location and mat.
- (e) Concrete design compressive strength, $f'c$.
- (f) Bar stress condition - tension or compression.

- (g) Designation of "top bars" and "others".
- (h) Steel reinforcement design yield strength.
- f. Method(s) of measurement and payment, if the standard specification includes more than one method.

4. DISCUSSION OF METHODS

a. Section 5, Splicing Bar Reinforcement.

- (1) Method 1 is 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 will apply when National Standard detail drawings are used.
- (2) Method 2 is 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.

b. Section 9, Measurement and Payment.

- (1) Method 1 is intended for use when all reinforcement is measured by weight.
- (2) Method 2 is intended for use when bar reinforcement is measured by weight and welded wire fabric reinforcement is measured by area.

When specifications are prepared using electronic procedures and all but one measurement and payment method are deleted for use in the contract specification, delete "All Methods The following provisions apply to all methods of measurement and payment." and left justify the remaining text.