

(f) Welded wire fabric used as reinforcement in structural slabs shall be spliced in accordance with the following provisions:

1. Lapped splices of wires in regions of maximum stress (where they are carrying more than one-half of the permissible stress) shall be avoided wherever possible; such splices where used shall be so made that the overlap measured between outermost cross wires of each fabric sheet is not less than the spacing of the cross wires plus 2 in.

2. Splices of wires stressed at not more than one-half the permissible stress shall be so made that the overlap measured between outermost cross wires is not less than 2 in.

806—Lateral reinforcement

(a) Spiral column reinforcement shall consist of evenly spaced continuous spirals held firmly in place and true to line by vertical spacers. At least two spacers shall be used for spirals 20 in. or less in diameter, three for spirals 20 to 30 in. in diameter, and four for spirals more than 30 in. in diameter. When spiral rods are $\frac{5}{8}$ in. or larger, three spacers shall be used for spirals 24 in. or less in diameter and four for spirals more than 24 in. in diameter. The spirals shall be of such size and so assembled as to permit handling and placing without being distorted from the designed dimensions. The material used in spirals shall have a minimum diameter of $\frac{1}{4}$ in. for rolled bars or No. 4 AS&W gage for drawn wire. Anchorage of spiral reinforcement shall be provided by $1\frac{1}{2}$ extra turns of spiral rod or wire at each end of the spiral unit. Splices when necessary in spiral rods or wires shall be made by welding or by a lap of $1\frac{1}{2}$ turns. The center to center spacing of the spirals shall not exceed one-sixth of the core diameter. The clear spacing between spirals shall not exceed 3 in. nor be less than $1\frac{3}{8}$ in. or $1\frac{1}{2}$ times the maximum size of coarse aggregate used. The reinforcing spiral shall extend from the floor level in any story or from the top of the footing to the level of the lowest horizontal reinforcement in the slab, drop panel, or beam above. In a column with a capital, the spiral shall extend to a plane at which the diameter or width of the capital is twice that of the column.

(b) All bars for tied columns shall be enclosed by lateral ties at least $\frac{1}{4}$ in. in diameter spaced apart not over 16 bar diameters, 48 tie diameters, or the least dimension of the column. The ties shall be so arranged that every corner and alternate longitudinal bar shall have lateral support provided by the corner of a tie having an included angle of not more than 135 deg and no bar shall be farther than 6 in. from such a laterally supported bar. Where the bars are located around the periphery of a circle, a complete circular tie may be used.

(c) Compression reinforcement in beams or girders shall be anchored by ties or stirrups, which shall be not less than $\frac{1}{4}$ in. in diameter spaced

not farther apart than 16 bar diameters, or 48 tie diameters. At least one tie at each spacing shall extend completely around all longitudinal bars. Such stirrups or ties shall be used throughout the distance where the compression reinforcement is required.

807—Shrinkage and temperature reinforcement

(a) Reinforcement for shrinkage and temperature stresses normal to the principal reinforcement shall be provided in structural floor and roof slabs where the principal reinforcement extends in one direction only. Such reinforcement shall provide at least the following ratios of reinforcement area to gross concrete area, but in no case shall such reinforcing bars be placed farther apart than five times the slab thickness or more than 18 in.

Slabs where plain bars are used	0.0025
Slabs where deformed bars with specified yield strengths less than 60,000 psi are used	0.0020
Slabs where deformed bars with 60,000 psi specified yield strength or welded wire fabric having welded intersections not farther apart in the direction of stress than 12 in. are used	0.0018

808—Concrete protection for reinforcement

(a) The reinforcement of footings and other principal structural members in which the concrete is deposited against the ground shall have not less than 3 in. of concrete between it and the ground contact surface. If concrete surfaces after removal of the forms are to be exposed to the weather or be in contact with the ground, the reinforcement shall be protected with not less than 2 in. of concrete for bars larger than #5 and $1\frac{1}{2}$ in. for #5 bars or smaller.

(b) The concrete protective covering for any reinforcement at surfaces not exposed directly to the ground or weather shall be not less than $\frac{3}{4}$ in. for slabs and walls, and not less than $1\frac{1}{2}$ in. for beams and girders. In concrete joist floors in which the clear distance between joists is not more than 30 in., the protection of reinforcement shall be at least $\frac{3}{4}$ in.

(c) Column spirals or ties shall be protected everywhere by a covering of concrete cast monolithically with the core, for which the thickness shall be not less than $1\frac{1}{2}$ in. nor less than $1\frac{1}{2}$ times the maximum size of the coarse aggregate.

(d) Concrete protection for reinforcement shall in all cases be at least equal to the diameter of bars, except for concrete slabs and joists as in (b).

(e) In extremely corrosive atmospheres or other severe exposures, the amount of protection shall be suitably increased.