





Spacing Guidelines for Reinforcing Steel Bars

Use the table in Figure 1 for preferred minimum spacing of reinforcing bars, including spacing of bundled bars with various configurations. Note that the vertical configuration of bundled bars allows for reduced spacing, which may prove useful to reduce congestion in bridge bent caps with bundled bars to reduce congestion.

Bar Size	Preferred Minimum Spacing (inches)			
				
4	3 ¹ / ₄	3 ¹ / ₄	4	4
5	3 ¹ / ₂	3 ¹ / ₂	4 ¹ / ₄	4 ¹ / ₄
6	3 ³ / ₄	3 ³ / ₄	4 ¹ / ₂	4 ¹ / ₂
7	4	4	4 ³ / ₄	4 ³ / ₄
8	4 ¹ / ₄	4 ¹ / ₄	5	5 ¹ / ₄
9	4 ¹ / ₂	4 ¹ / ₂	5 ¹ / ₂	5 ³ / ₄
10	4 ³ / ₄	5	6	6 ¹ / ₄
11	5	5 ¹ / ₂	6 ¹ / ₂	7
14	5 ¹ / ₂	6	7 ¹ / ₂	—
18	6	7 ¹ / ₂	10	—

Where minimum spacing limitations are based on bar size, a unit of bundled bars shall be treated as single bar of diameter derived from the equivalent total area. For bundles having equal size bars the diameter for spacing shall be the diameter of a single bar multiplied by the following factors:

- 2 bar bundles = 1.414
- 3 bar bundles = 1.732

For minimum bar spacing for CIP concrete piles, see *Bridge Design Details*, page 13-22.

Bar Size Restrictions

Number 14 and number 18 bars which would require splicing should be specified only when it is impractical to use smaller bars.

Figure 1. Excerpt from Section 13 – Reinforcement, of *Caltrans Bridge Design Details*, November 1992 (no longer published)