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CODE

13.4.4.2 Portions of deep foundation members in air, water, or soils not capable of providing adequate restraint throughout the member length to prevent lateral buckling shall be designed as columns in accordance with the applicable provisions of Chapter 10.

13.4.5 *Precast concrete piles*

13.4.5.1 Precast concrete piles supporting buildings assigned to SDC A or B shall satisfy the requirements of 13.4.5.2 through 13.4.5.6.

13.4.5.2 Longitudinal reinforcement shall be arranged in a symmetrical pattern.

13.4.5.3 For precast nonprestressed piles, longitudinal reinforcement shall be provided according to (a) and (b):

(a) Minimum of 4 bars
(b) Minimum area of $\mathbf{0.008}A_g$

13.4.5.4 For precast prestressed piles, the effective prestress in the pile shall provide a minimum average compressive stress in the concrete in accordance with Table 13.4.5.4.

Table 13.4.5.4—Minimum compressive stress in precast prestressed piles

Pile length, m	Minimum compressive stress, MPa
Pile length ≤ 10	2.8
10 < Pile length ≤ 15	3.8
Pile length > 15	4.8

13.4.5.5 For precast prestressed piles, the effective prestress in the pile shall be calculated based on an assumed total loss of 210 MPa in the prestressed reinforcement.

13.4.5.6 The longitudinal reinforcement shall be enclosed by transverse reinforcement according to Table 13.4.5.6(a) and shall be spaced according to Table 13.4.5.6(b):

Table 13.4.5.6(a)—Minimum transverse reinforcement size

Least horizontal pile dimension h, mm	Minimum wire size transverse reinforcement[1]
$h \le 400$	MWW25, MD25
$400 < h < 500$	MW30, MD30
$h \ge 500$	MW35, MW35

[1]If bars are used, minimum of No. 10 bar applies to all values of h.

COMMENTARY

R13.4.5 *Precast concrete piles*

R13.4.5.6 The minimum transverse reinforcement required in this section is typically sufficient for driving and handling stresses. These provisions for precast concrete piles in SDC A and B are based on information from PCI *Recommended Practice for the Design, Manufacture, and Installation of Prestressed Concrete Piling* (1993) and the *PCI Bridge Design Manual*, Chapter 20 (2004). Minimum reinforcement requirements for precast concrete piles supporting buildings assigned to SDC C, D, E, and F are defined in 18.13.5.10.

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