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5360 WORKMAN MILL ROAD
WHITTIER, CALIFORNIA 90601-2298
(310) 699-0541

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1809.5.2 Steel piles, nonprestressed concrete piles and prestressed concrete piles.

1809.5.2.1 Steel piles. Piles shall conform to width-thickness ratios of stiffened, unstiffened and tubular compression elements as shown in Chapter 22, Division VIII.

1809.5.2.2 Nonprestressed concrete piles. Piles shall have transverse reinforcement meeting the requirements of Section 1921.4.

EXCEPTION: Transverse reinforcement need not exceed the amount determined by Formula (21-2) in Section 1921.4.4.1 for spiral or circular hoop reinforcement or by Formula (21-4) in Section 1921.4.4.1 for rectangular hoop reinforcement.

1809.5.2.3 Prestressed concrete piles. Piles shall have a minimum volumetric ratio of spiral reinforcement no less than 0.021 for 14-inch (356 mm) square and smaller piles, and 0.012 for 24-inch (610 mm) square and larger piles unless a smaller value can be justified by rational analysis. Interpolation may be used between the specified ratios for intermediate sizes.

TABLE 18-I-A—ALLOWABLE FOUNDATION AND LATERAL PRESSURE

CLASS OF MATERIALS[1]	ALLOWABLE FOUNDATION PRESSURE (psf)[2] × 0.0479 for kPa	LATERAL BEARING LBS./SQ./FT./FT. OF DEPTH BELOW NATURAL GRADE[3] × 0.157 for kPa per meter	LATERAL SLIDING[4] Coefficient[5]	LATERAL SLIDING[4] Resistance (psf)[6] × 0.0479 for kPa
1. Massive crystalline bedrock	4,000	1,200	.70	
2. Sedimentary and foliated rock	2,000	400	.35	
3. Sandy gravel and/or gravel (GW and GP)	2,000	200	.35	
4. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC)	1,500	150	.25	
5. Clay, sandy clay, silty clay and clayey silt (CL, ML, MH and CH)	1,000[7]	100		130

[1]For soil classifications OL, OH and PT (i.e., organic clays and peat), a foundation investigation shall be required.
[2]All values of allowable foundation pressure are for footings having a minimum width of 12 inches (305 mm) and a minimum depth of 12 inches (305 mm) into natural grade. Except as in Footnote 7 below, increase of 20 percent allowed for each additional foot (305 mm) of width or depth to a maximum value of three times the designated value.
[3]May be increased the amount of the designated value for each additional foot (305 mm) of depth to a maximum of 15 times the designated value. Isolated poles for uses such as flagpoles or signs and poles used to support buildings which are not adversely affected by a $^1/_2$-inch (13 mm) motion at ground surface due to short-term lateral loads may be designed using lateral bearing values equal to two times the tabulated values.
[4]Lateral bearing and lateral sliding resistance may be combined.
[5]Coefficient to be multiplied by the dead load.
[6]Lateral sliding resistance value to be multiplied by the contact area. In no case shall the lateral sliding resistance exceed one half the dead load.
[7]No increase for width is allowed.

TABLE 18-I-B—CLASSIFICATION OF EXPANSIVE SOIL

EXPANSION INDEX	POTENTIAL EXPANSION
0-20	Very low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very high

TABLE 18-I-C—WEIGHTED EXPANSION INDEX[1]

DEPTH INTERVAL[2] × 304.8 for mm	WEIGHT FACTOR
0-1	0.4
1-2	0.3
2-3	0.2
3-4	0.1
Below 4	0

[1]The weighted expansion index for nonuniform soils is determined by multiplying the expansion index for each depth interval by the weight factor for that interval and summing the products.
[2]Depth in feet (305 mm) below the ground surface.

TABLE 18-I-D—FOUNDATIONS FOR STUD BEARING WALLS—MINIMUM REQUIREMENTS[1, 2, 3]

NUMBER OF FLOORS SUPPORTED BY THE FOUNDATION[4]	THICKNESS OF FOUNDATION WALL (Inches) × 25.4 for mm		WIDTH OF FOOTING (Inches)	THICKNESS OF FOOTING (Inches)	DEPTH BELOW UNDISTURBED GROUND SURFACE (Inches)
	Concrete	Unit Masonry	× 25.4 for mm		
1	6	6	12	6	12
2	8	8	15	7	18
3	10	10	18	8	24

[1]Where unusual conditions or frost conditions are found, footings and foundations shall be as required in Section 1806.1.
[2]The ground under the floor may be excavated to the elevation of the top of the footing.
[3]Interior stud bearing walls may be supported by isolated footings. The footing width and length shall be twice the width shown in this table and the footings shall be spaced not more than 6 feet (1829 mm) on center.
[4]Foundations may support a roof in addition to the stipulated number of floors. Foundations supporting roofs only shall be as required for supporting one floor.

H/2 but need not exceed 15′ (4572 mm) max.

H/3 but need not exceed 40′ (12 192 mm) max.

FIGURE 18-I-1