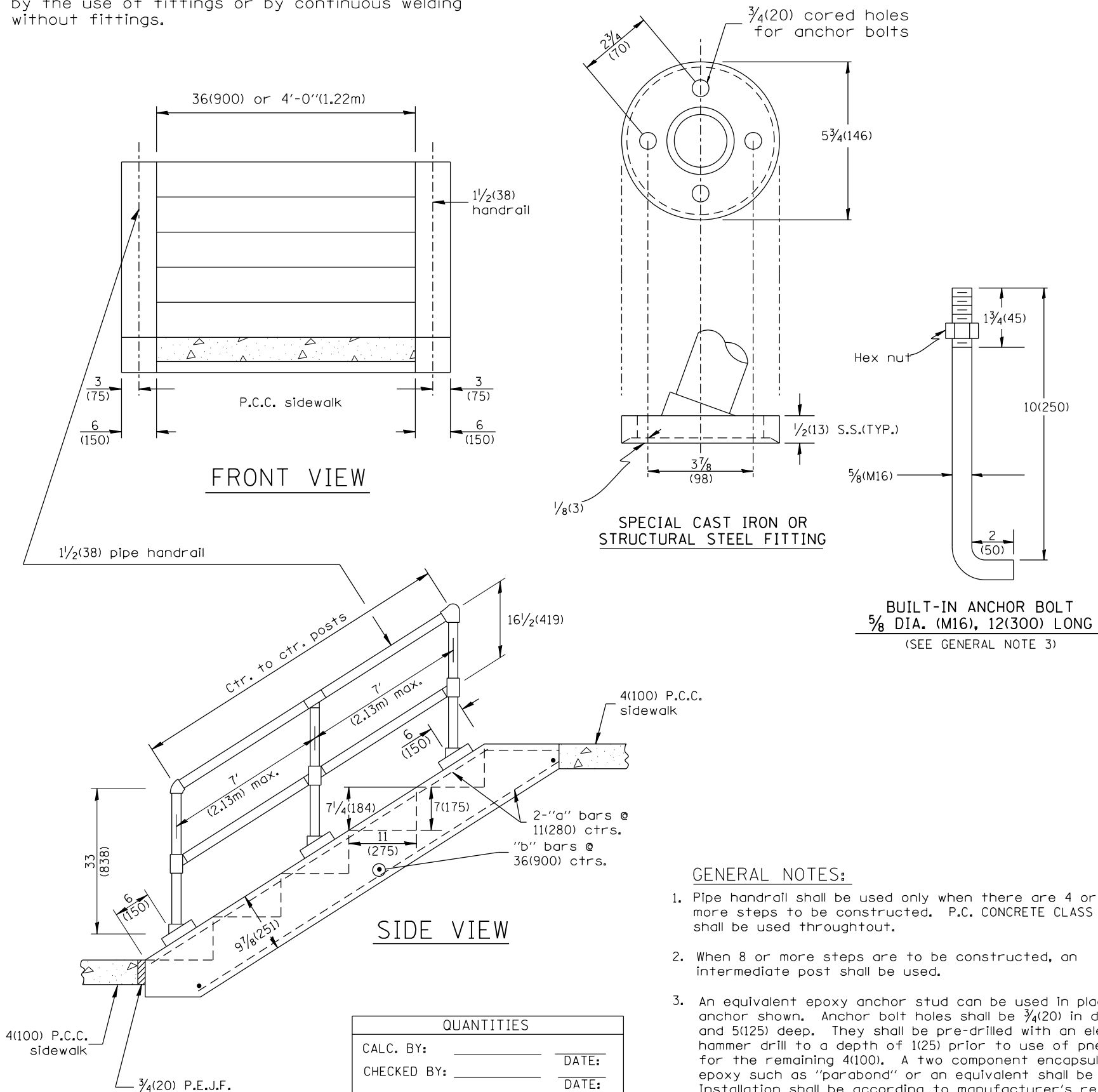


Connction of railings to posts may be made either by the use of fittings or by continuous welding without fittings.

Article 509.04 of the Standard Specifications apply.

DESIGNER NOTES: DETAIL FOR PRIVATE RESIDENCE, NOT COMMERCIAL USE. COMMERCIAL MUST FIT ADA REQUIREMENTS.



GENERAL NOTES:

1. Pipe handrail shall be used only when there are 4 or more steps to be constructed. P.C. CONCRETE CLASS SI shall be used throughout.
2. When 8 or more steps are to be constructed, an intermediate post shall be used.
3. An equivalent epoxy anchor stud can be used in place of anchor shown. Anchor bolt holes shall be 3/4(20) in diameter and 5(125) deep. They shall be pre-drilled with an electric hammer drill to a depth of 1(25) prior to use of pneumatic drill for the remaining 4(100). A two component encapsulated epoxy such as "parabond" or an equivalent shall be used. Installation shall be according to manufacturer's recommendations. The pipe handrail shall be galvanized by the hot dip process.

NO. OF STEPS	WIDTH IN.(mm)	CLASS "SI" CONCRETE CU. YDS. m ³	#4(#15) REINFORCEMENT BARS				PIPE HANDRAIL LENGTH
			BAR	NO.	LGTH.	lbs(kg)	
1	36 (900)	0.17(0.13)	a	7	24(610)	14(10)	—
			b	2	3'-9"(1.14m)		
1	4'-0" (1.22m)	0.21(0.16)	a	8	24(610)	16(12)	—
			b	2	4'-9"(1.45m)		
2	36 (900)	0.26(0.20)	a	7	36(914)	20(14)	—
			b	2	3'-9"(1.14m)		
2	4'-0" (1.22m)	0.33(0.25)	a	8	36(914)	22(16)	—
			b	2	4'-9"(1.45m)		
3	36 (900)	0.35(0.27)	a	7	4'-0"(1.22m)	26(19)	—
			b	3	3'-9"(1.14m)		
3	4'-0" (1.22m)	0.45(0.34)	a	8	4'-0"(1.22m)	31(22)	—
			b	3	4'-9"(1.45m)		
4	36 (900)	0.44(0.34)	a	7	5'-0(1.52m)	31(24)	3'-4"(1.01m)
			b	3	3'-9"(1.14m)		
4	4'-0" (1.22m)	0.57(0.44)	a	8	5'-0(1.52m)	36(26)	3'-4"(1.01m)
			b	3	4'-9"(1.45m)		
5	36 (900)	0.53(0.41)	a	7	6'-0(1.83m)	38(27)	4'-5"(1.35m)
			b	4	3'-9"(1.14m)		
5	4'-0" (1.22m)	0.69(0.53)	a	8	6'-0(1.83m)	45(32)	4'-5"(1.35m)
			b	4	4'-9"(1.45m)		
6	36 (900)	0.62(0.47)	a	7	7'-0(2.13m)	43(31)	5'-6"(1.68m)
			b	4	3'-9"(1.14m)		
6	4'-0" (1.22m)	0.81(0.62)	a	8	7'-0(2.13m)	50(36)	5'-6"(1.68m)
			b	4	4'-9"(1.45m)		
7	36 (900)	0.71(0.54)	a	7	8'-0(2.44m)	49(56)	6'-7"(2.01m)
			b	5	3'-9"(1.14m)		
7	4'-0" (1.22m)	0.93(0.71)	a	8	8'-0(2.44m)	59(42)	6'-7"(2.01m)
			b	5	4'-9"(1.45m)		
8	36 (900)	0.80(0.61)	a	7	9'-0(2.74m)	55(39)	7'-8"(2.34m)
			b	5	3'-9"(1.14m)		
8	4'-0" (1.22m)	1.05(0.80)	a	8	9'-0(2.74m)	64(46)	7'-8"(2.34m)
			b	5	4'-9"(1.45m)		
9	36 (900)	0.89(0.68)	a	7	10'-0(3.05m)	62(44)	8'-9"(2.67m)
			b	6	3'-9"(1.14m)		
9	4'-0" (1.22m)	1.17(0.89)	a	8	10'-0(3.05m)	72(52)	8'-9"(2.67m)
			b	6	4'-9"(1.45m)		
10	36 (900)	0.98(0.75)	a	7	11'-0(3.35m)	66(48)	9'-10"(2.67m)
			b	6	3'-9"(1.14m)		
10	4'-0" (1.22m)	1.29(0.99)	a	8	11'-0(3.35m)	78(56)	9'-10"(2.67m)
			b	6	4'-9"(1.45m)		

QUANTITIES	
CALC. BY:	DATE:
CHECKED BY:	DATE:
QUANTITY CALCULATIONS ARE ON FILE AT THE DISTRICT 4 OFFICE; BUREAU OF PROJECT IMPLEMENTATION; DOCUMENTATION SECTION	