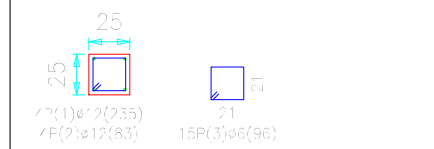


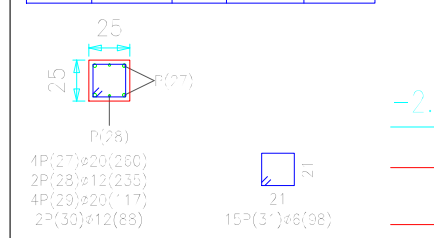
P1=P3=P4=P5=P6=P7
P8=P9=P10=P11=P12
P13=P14=P18=P21
P22=P23=P31=P32
P33=P34=P36=P40
P41=P42=P43=P44
P45=P46=P47=P48
P49=P50=P51=P52
P53=P54=P66

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 38 (cm)
1	ø12	4	235	940	35720
2	ø12	4	83	332	12616
3	ø6	15	96	1440	54720



P30

Pos.	Diám.	No.	Long. (cm)	Total (cm)
27	ø20	4	260	1040
28	ø12	2	235	470
29	ø12	4	117	468
30	ø12	2	88	176
31	ø6	15	96	1470



P55

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	ø12	4	197	788
2	ø12	4	83	332
3	ø6	15	96	440



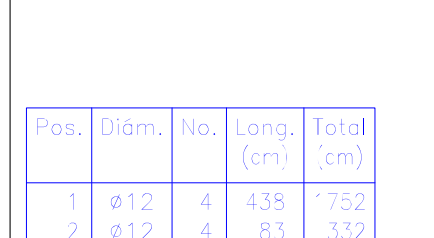
P63

Pos.	Diám.	No.	Long. (cm)	Total (cm)
1	ø12	4	435	1740
2	ø12	4	83	332
3	ø6	31	96	2976



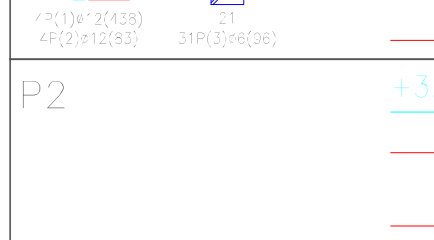
P2

Pos.	Diám.	No.	Long. (cm)	Total (cm)
3	ø16	4	338	1352
4	ø6	18	97	1746



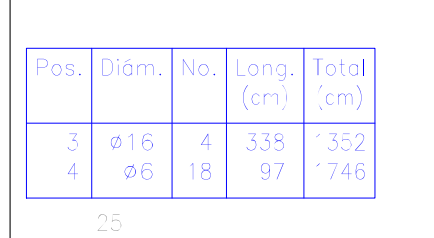
P64

Pos.	Diám.	No.	Long. (cm)	Total (cm)
19	ø12	4	435	1752
20	ø12	4	83	332
21	ø6	31	96	2976



P2

Pos.	Diám.	No.	Long. (cm)	Total (cm)
3	ø16	4	338	1352
4	ø6	18	97	1746



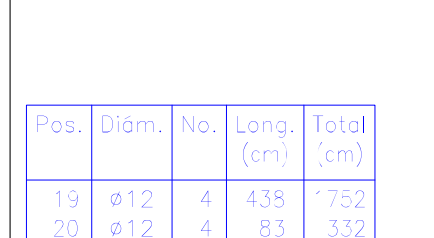
P64

Pos.	Diám.	No.	Long. (cm)	Total (cm)
19	ø12	4	435	1752
20	ø12	4	83	332
21	ø6	31	96	2976



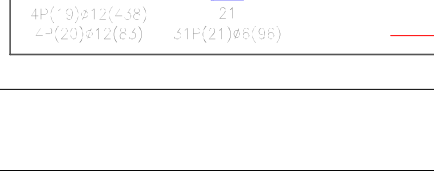
P2

Pos.	Diám.	No.	Long. (cm)	Total (cm)
3	ø16	4	338	1352
4	ø6	18	97	1746



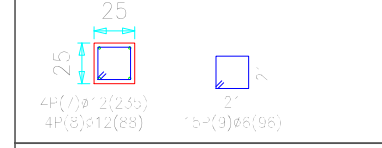
P64

Pos.	Diám.	No.	Long. (cm)	Total (cm)
19	ø12	4	435	1752
20	ø12	4	83	332
21	ø6	31	96	2976



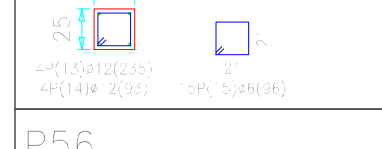
P15=P24=P25=P28
P35=P37

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 6 (cm)
7	ø12	4	235	940	5640
8	ø12	4	88	352	2112
9	ø6	15	96	1440	8640



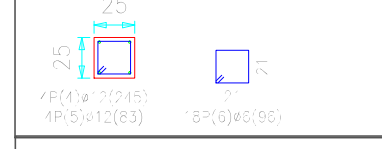
P17=P27=P38=P67
P68=P69

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 6 (cm)
13	ø12	4	235	940	5640
14	ø12	4	93	372	2232
15	ø6	15	96	1440	8640



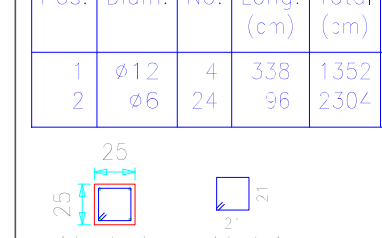
P56

Pos.	Diám.	No.	Long. (cm)	Total (cm)
6	ø12	4	245	980
7	ø12	4	83	332
8	ø6	18	96	1728



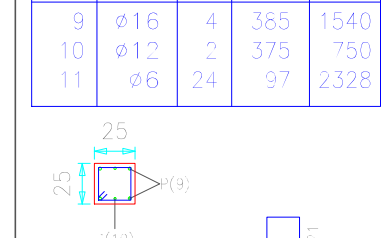
P1=P12=P13=P22
P33=P42=P48=P49
P50=P51=P52=P53

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 12 (cm)
1	ø12	4	338	1352	16224
2	ø6	24	96	2304	27648



P19

Pos.	Diám.	No.	Long. (cm)	Total (cm)
9	ø16	4	365	1540
10	ø12	4	375	1500
11	ø6	24	97	2328



P65

Pos.	Diám.	No.	Long. (cm)	Total (cm)
22	ø12	4	489	1956
23	ø12	4	83	332
24	ø6	34	96	3264



P19

Pos.	Diám.	No.	Long. (cm)	Total (cm)
5	ø12	4	375	1500
6	ø6	24	96	2304

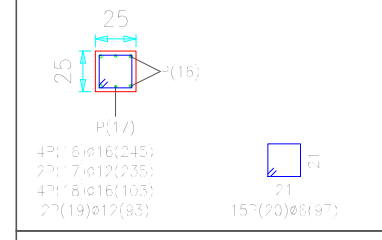


P3=P4=P5=P6=P7=P8
P9=P10=P11=P14
P15=P16=P17=P18
P19=P21=P23=P24
P25=P26=P27=P28
P29=P31=P32=P34
P35=P36=P37=P38
P40=P41=P43=P44
P45=P46=P47=P54
P66=P67=P68=P69

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 42 (cm)
1	ø12	4	298	1192	50064
2	ø6	22	96	2112	88704

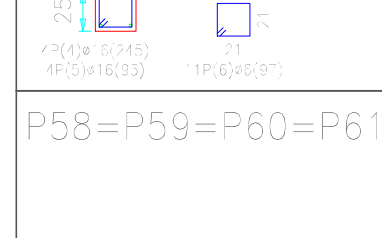
P19

Pos.	Diám.	No.	Long. (cm)	Total (cm)
16	ø16	4	245	980
17	ø12	2	235	470
18	ø16	4	103	412
19	ø12	2	93	186
20	ø6	15	97	1455



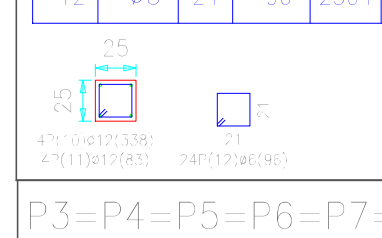
P2

Pos.	Diám.	No.	Long. (cm)	Total (cm)
4	ø16	4	245	980
5	ø16	4	93	372
6	ø6	11	97	1067



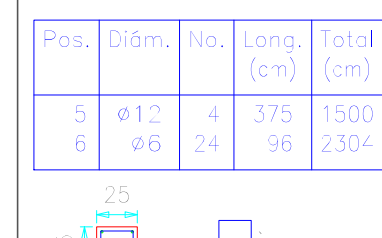
P58=P59=P60=P61

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 4 (cm)
10	ø12	4	338	1352	5408
11	ø12	4	83	332	1328
12	ø6	24	96	2304	9216



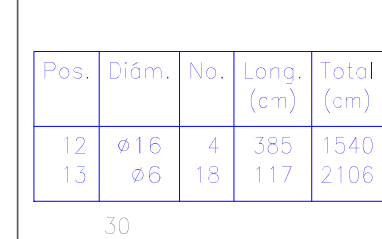
P3=P4=P5=P6=P7=P8
P9=P10=P11=P14
P15=P17=P18=P21
P23=P24=P25=P27
P28=P31=P32=P34
P35=P36=P37=P38
P40=P41=P43=P44
P45=P46=P47=P54
P67=P68=P69

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 31 (cm)
5	ø12	4	375	1500	55500
6	ø6	24	96	2304	85248



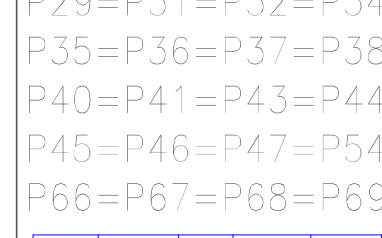
P20

Pos.	Diám.	No.	Long. (cm)	Total (cm)
12	ø16	4	365	1540
13	ø6	18	117	2106



P3=P4=P5=P6=P7=P8
P9=P10=P11=P14
P15=P16=P17=P18
P19=P21=P23=P24
P25=P26=P27=P28
P29=P31=P32=P34
P35=P36=P37=P38
P40=P41=P43=P44
P45=P46=P47=P54
P66=P67=P68=P69

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 42 (cm)
1	ø12	4	298	1192	50064
2	ø6	22	96	2112	88704



P39

Pos.	Diám.	No.	Long. (cm)	Total (cm)
7	ø12	6	208	1248
8	ø6	22	96	2112

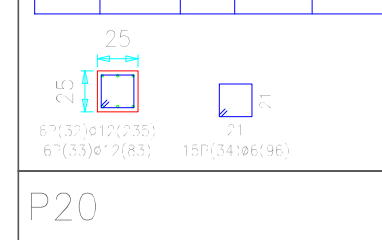


P39

Pos.	Diám.	No.	Long. (cm)	Total (cm)
7	ø12	6	208	1248
8	ø6	22	96	2112

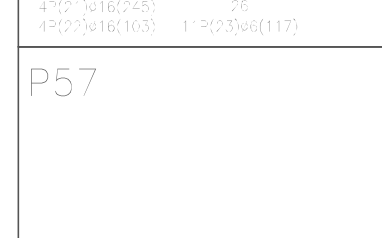
P39

Pos.	Diám.	No.	Long. (cm)	Total (cm)
32	ø12	6	235	1410
33	ø12	6	88	498
34	ø6	15	96	1440



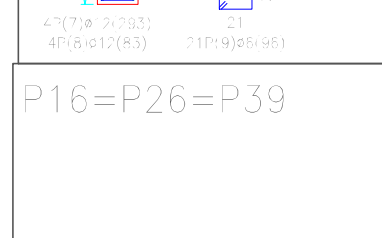
P20

Pos.	Diám.	No.	Long. (cm)	Total (cm)
21	ø16	4	245	980
22	ø16	4	103	412
23	ø6	11	117	1257



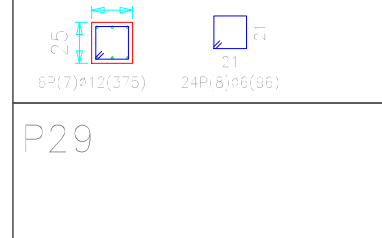
P57

Pos.	Diám.	No.	Long. (cm)	Total (cm)
7	ø12	4	293	1172
8	ø12	4	83	332
9	ø6	21	96	2016



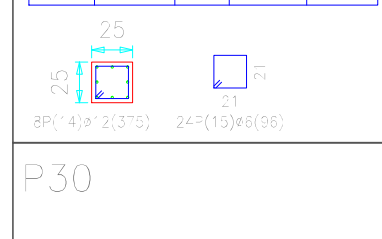
P16=P26=P39

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 3 (cm)
7	ø12	6	375	2250	6750
8	ø6	24	96	2304	6912



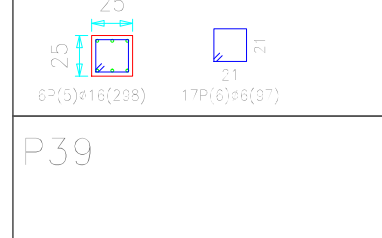
P29

Pos.	Diám.	No.	Long. (cm)	Total (cm)
14	ø12	8	375	3000
15	ø6	24	96	2304



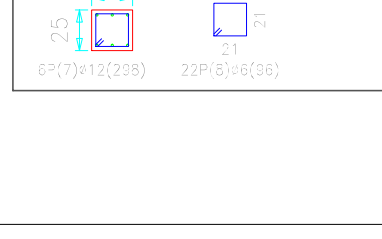
P30

Pos.	Diám.	No.	Long. (cm)	Total (cm)
5	ø16	6	298	1788
6	ø6	17	97	1649



P39

Pos.	Diám.	No.	Long. (cm)	Total (cm)
7	ø12	6	208	1248
8	ø6	22	96	2112

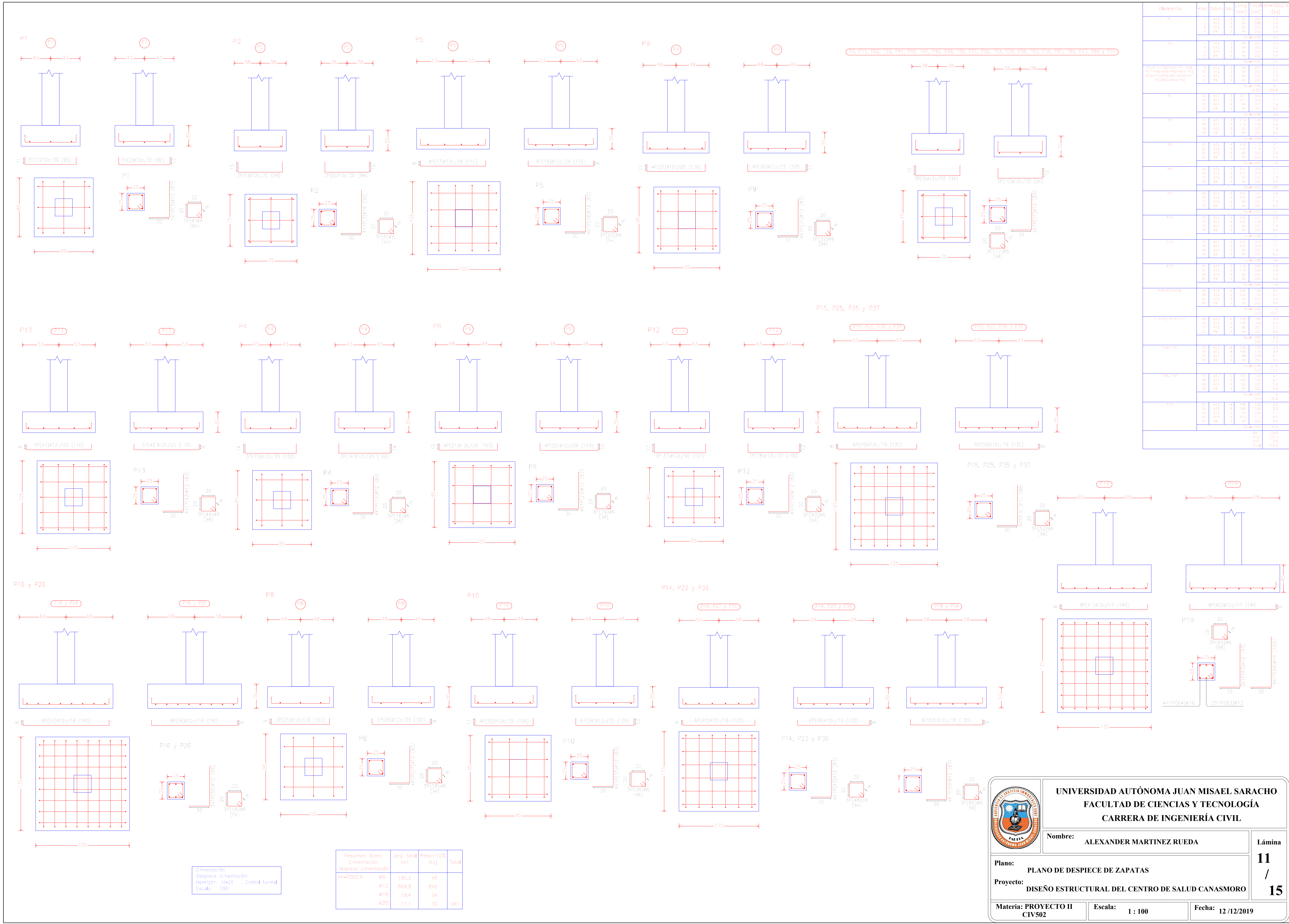


P39

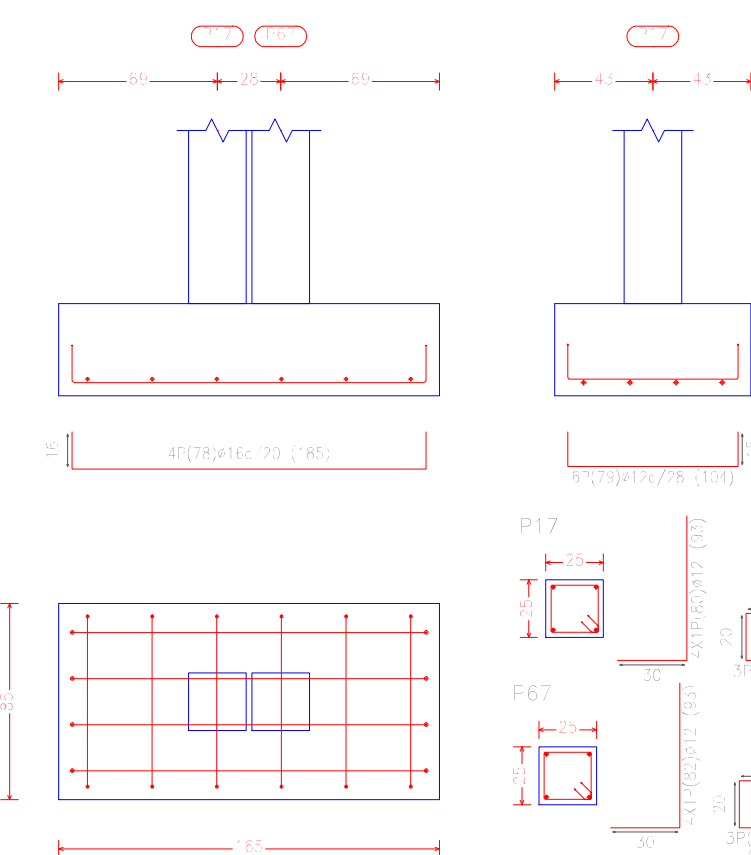
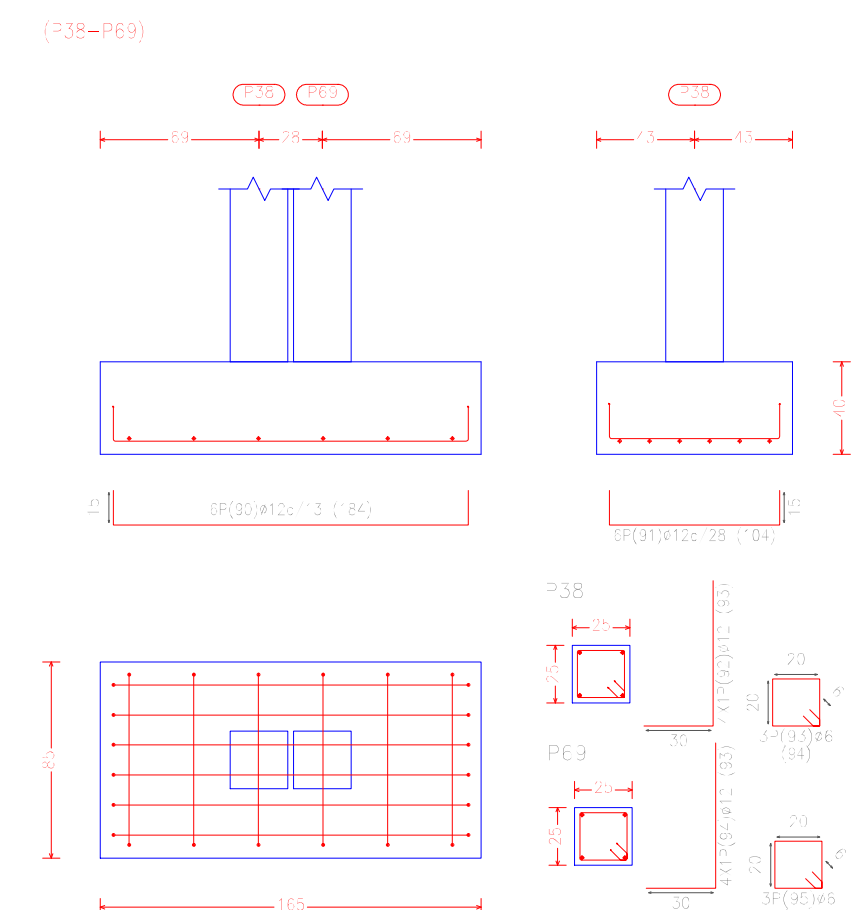
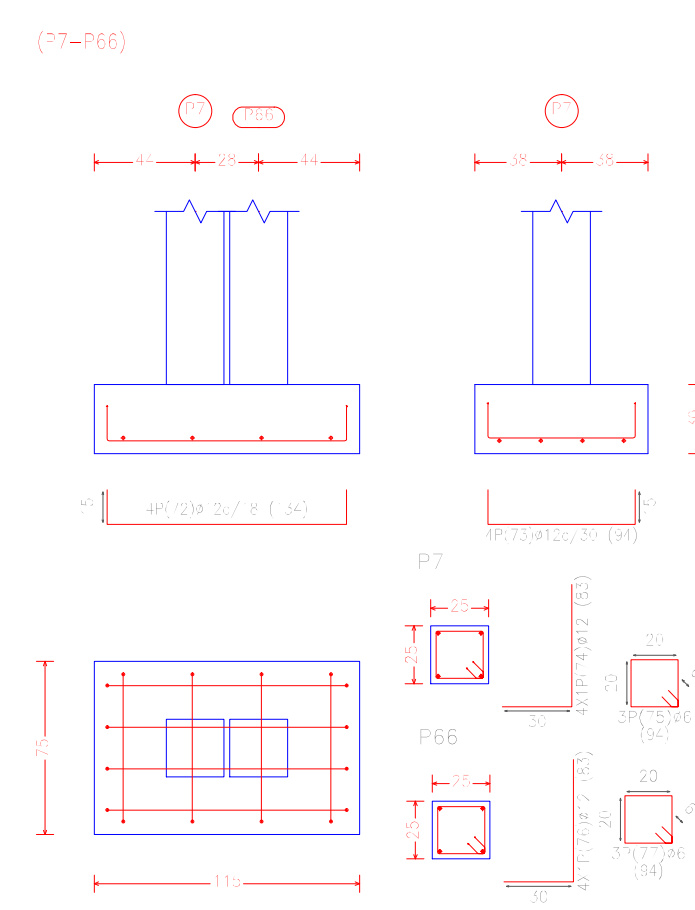
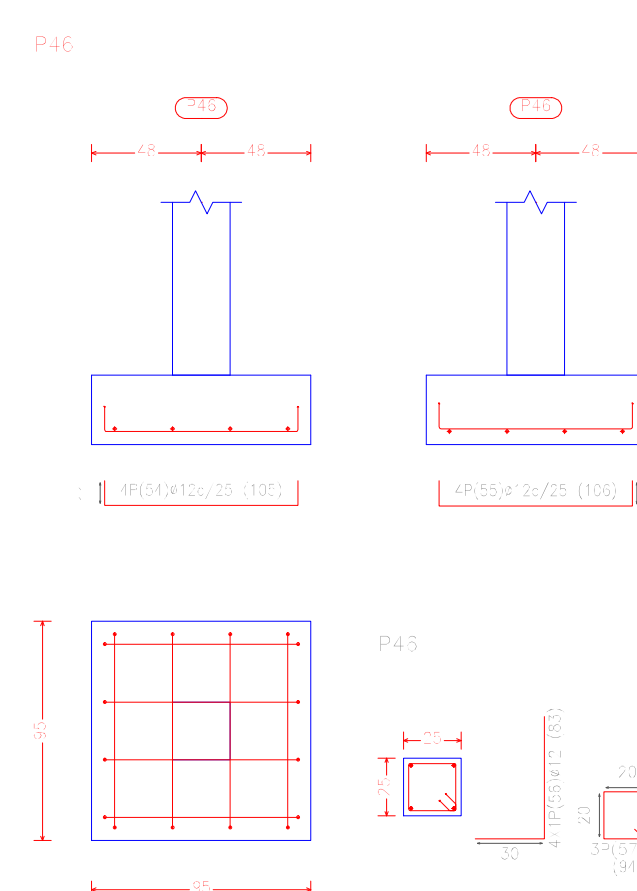
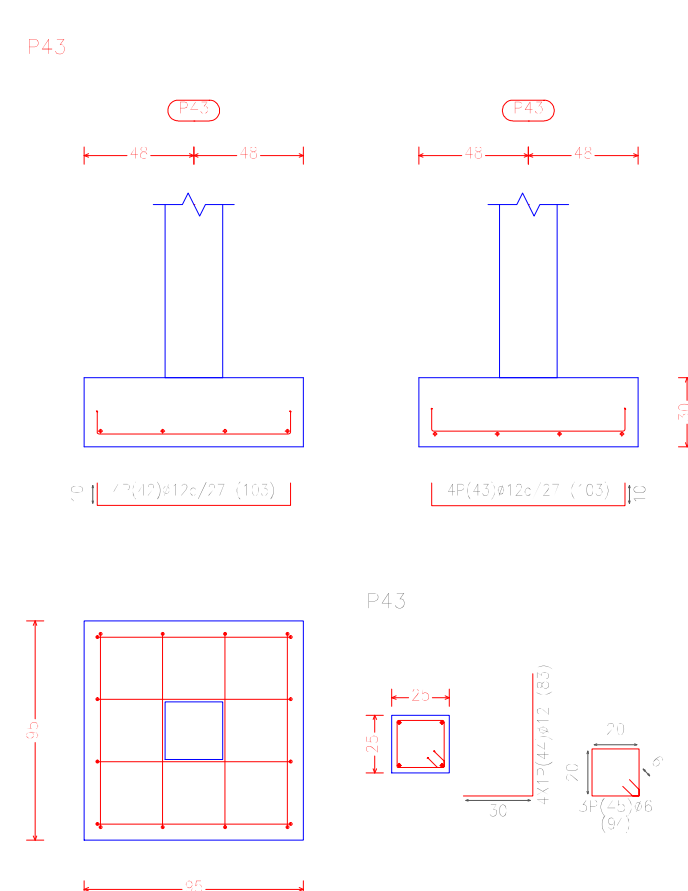
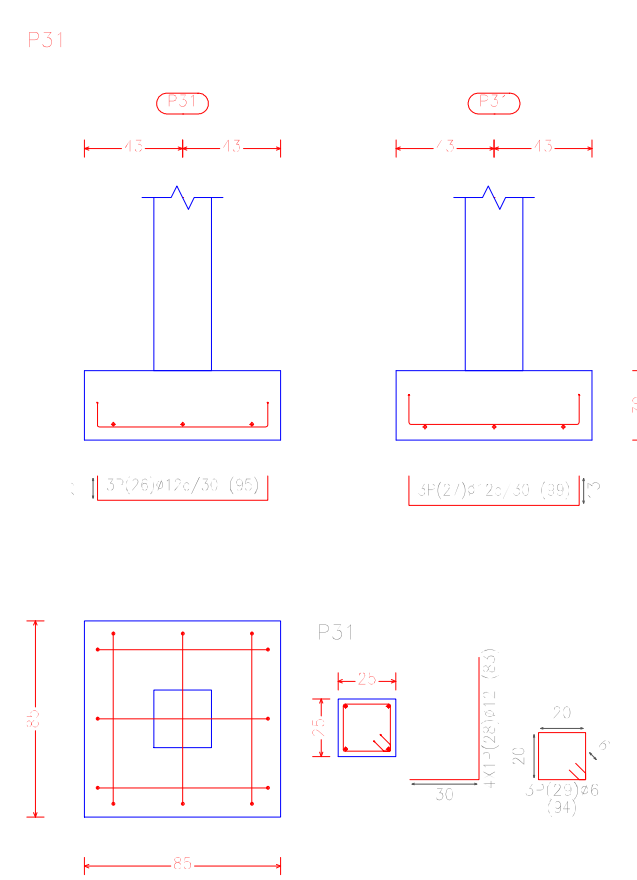
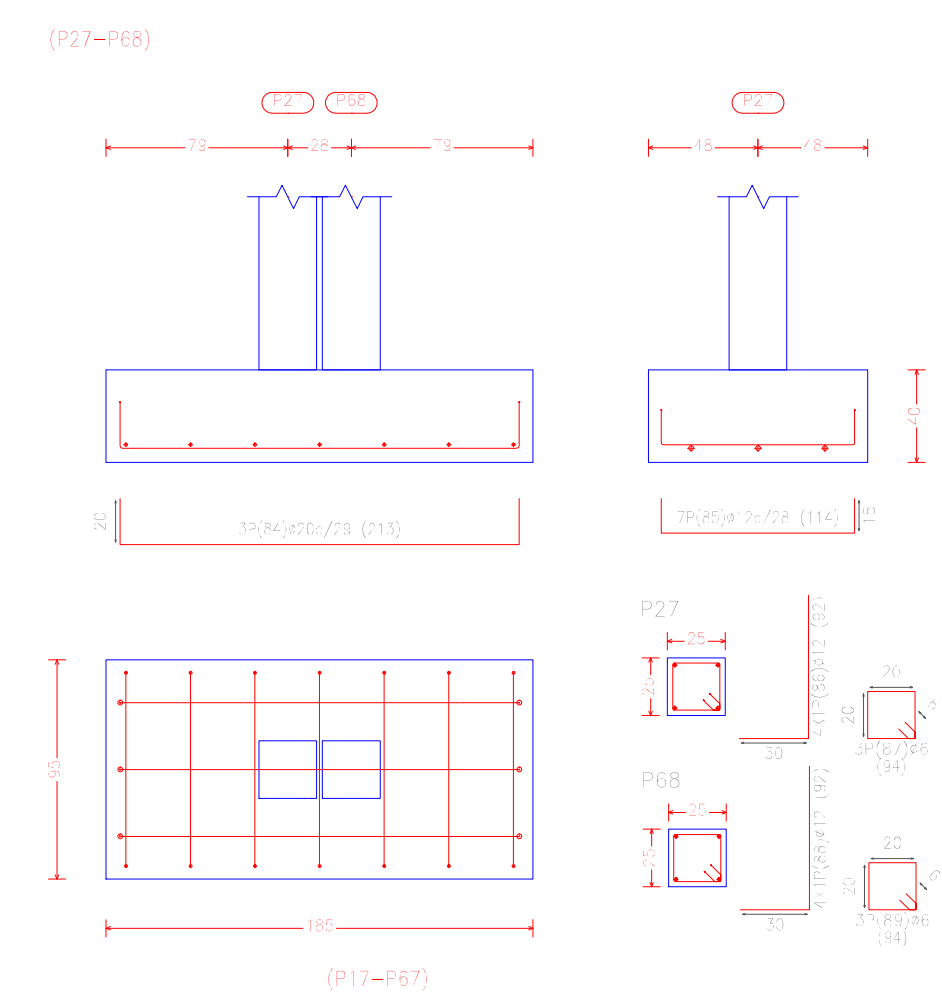
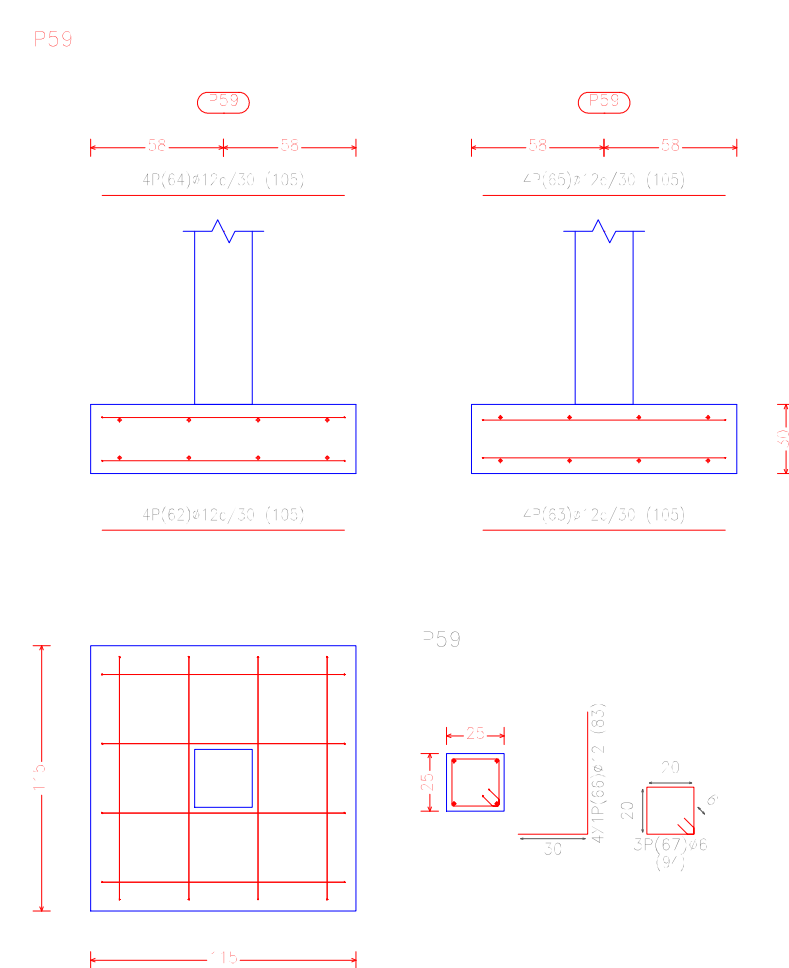
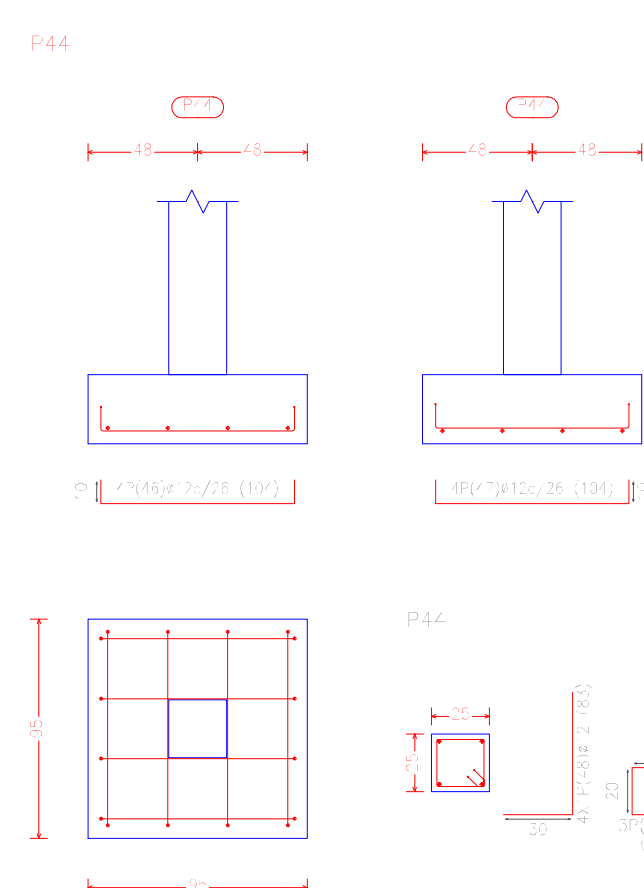
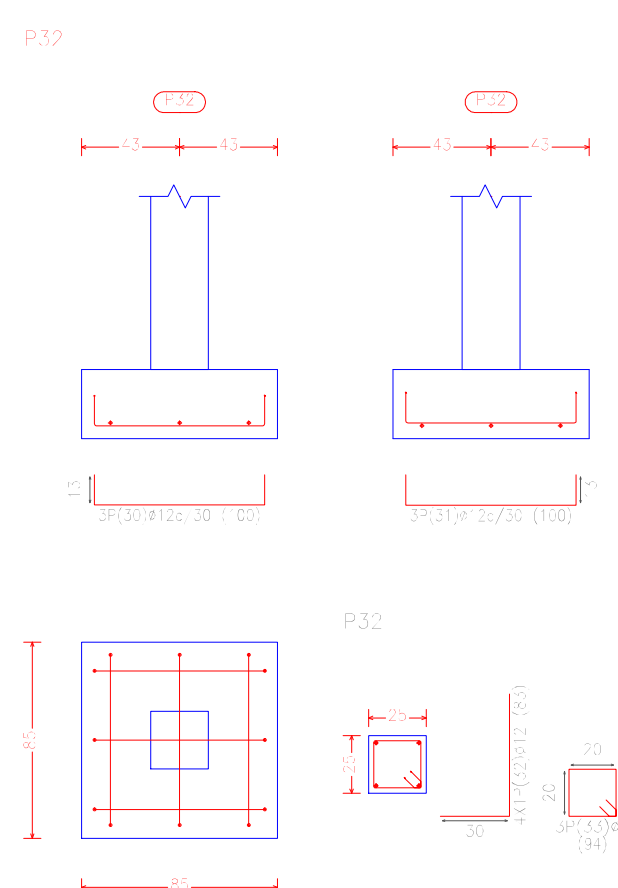
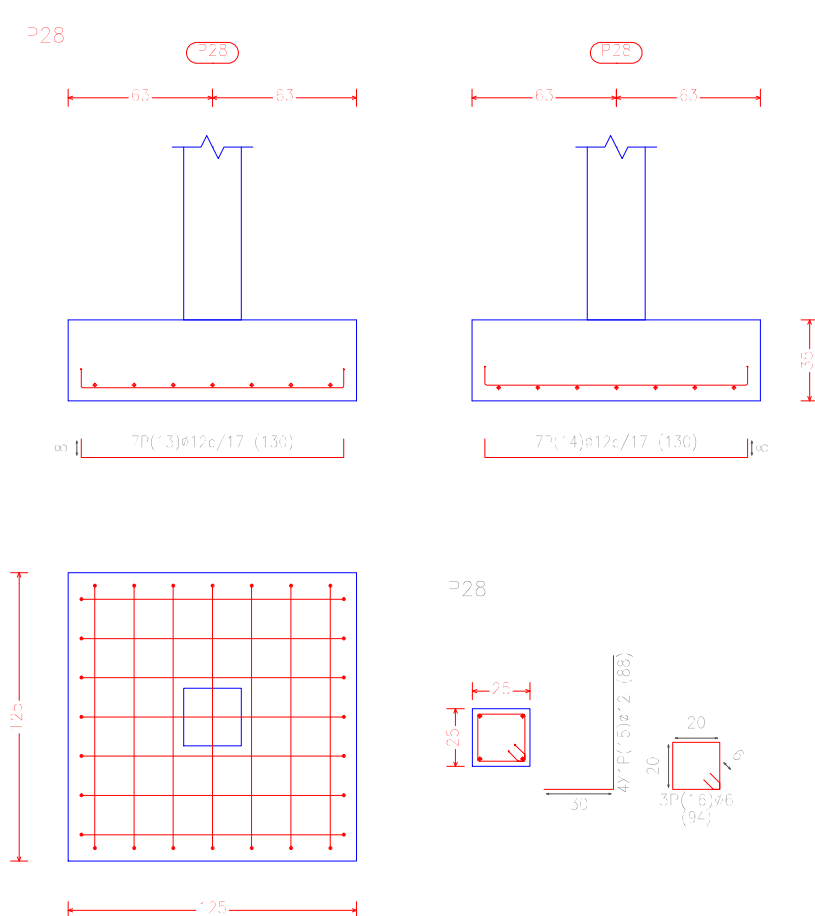
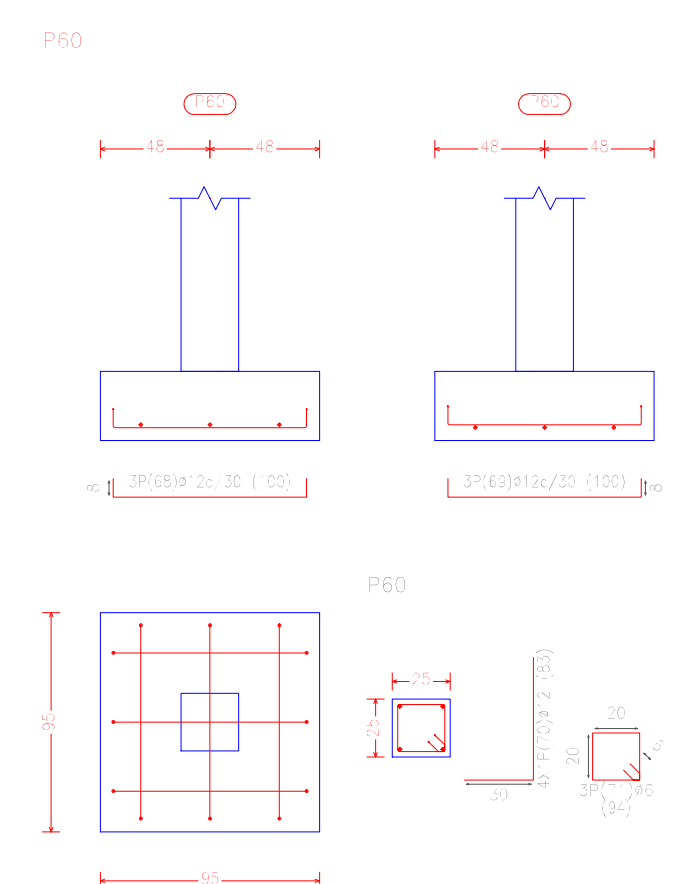
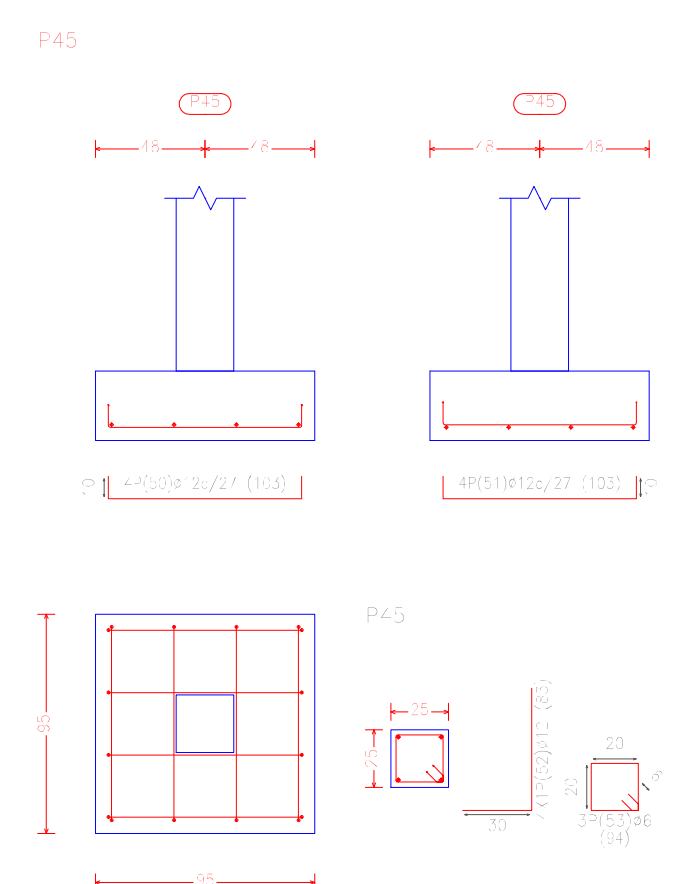
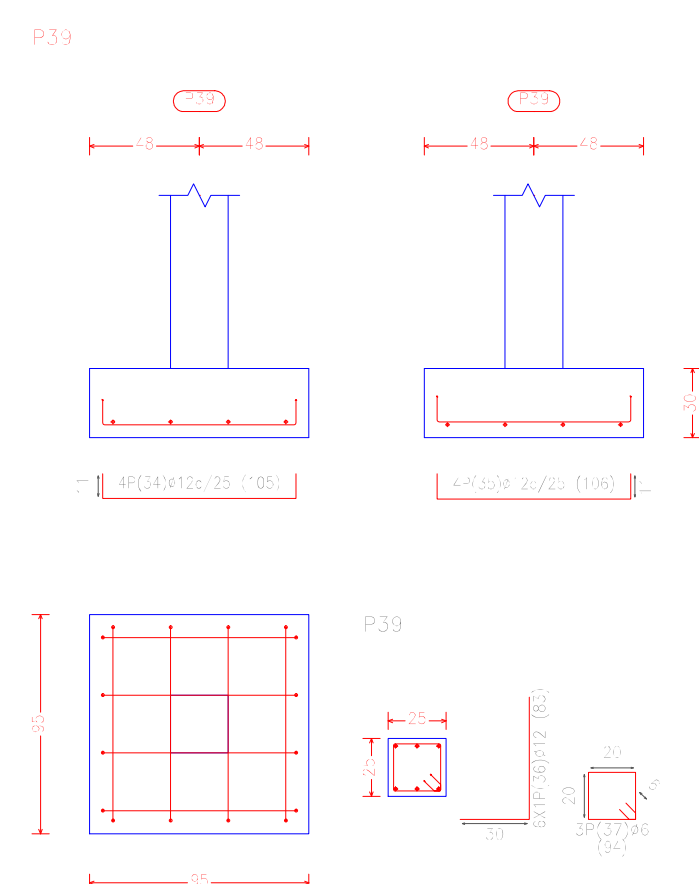
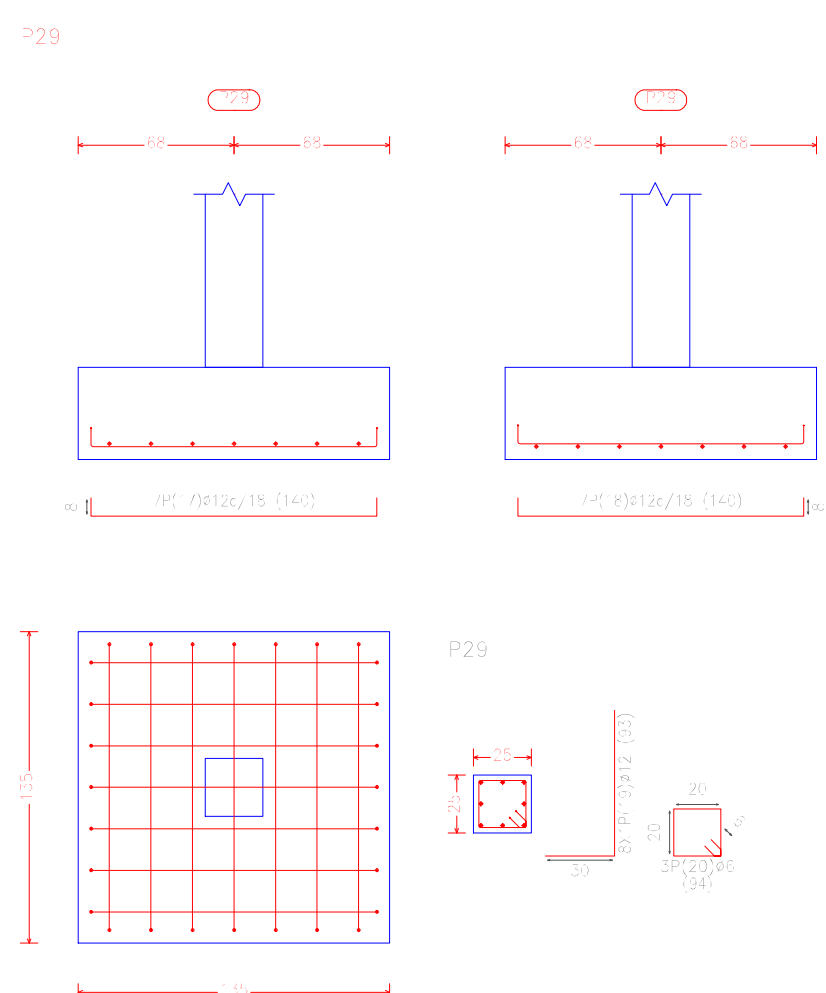
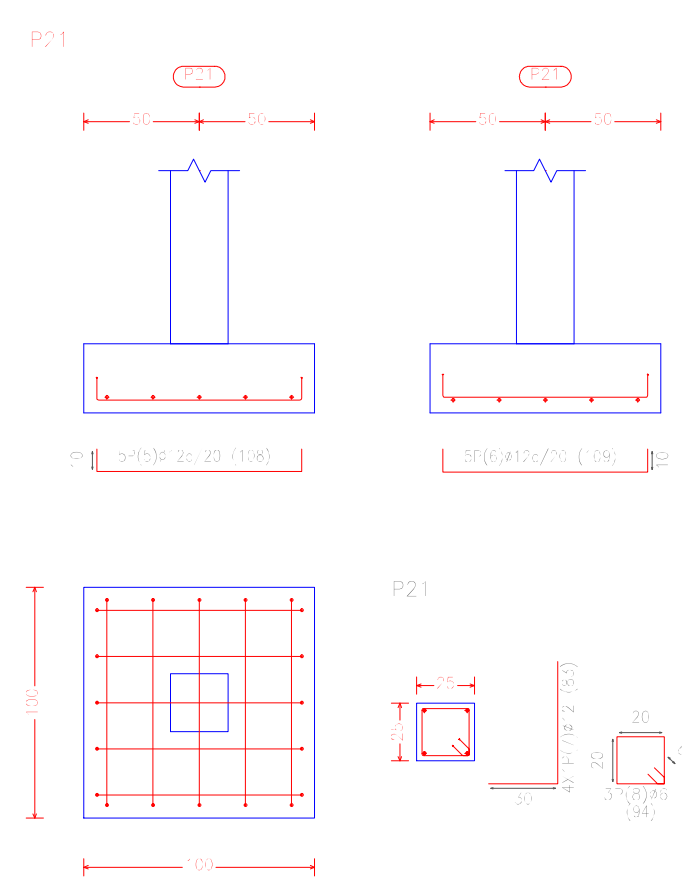
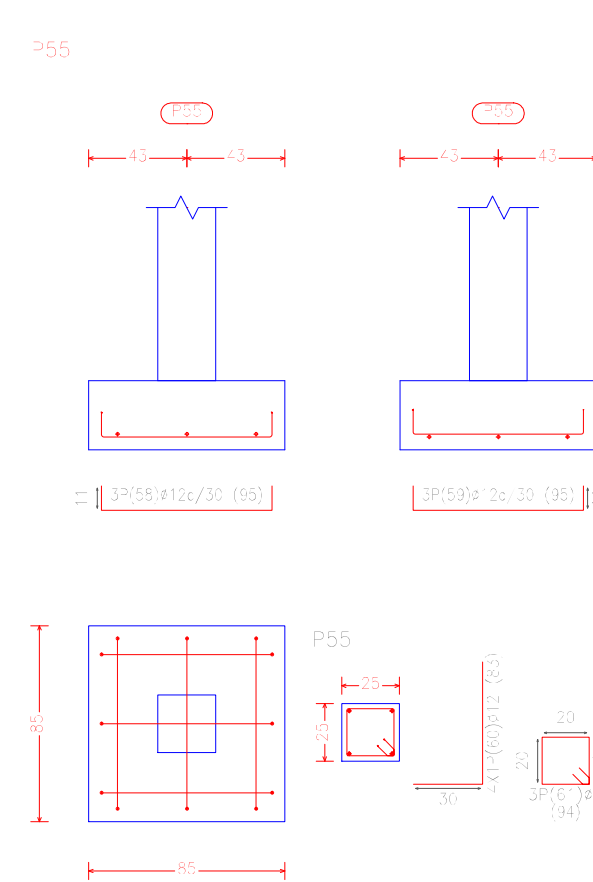
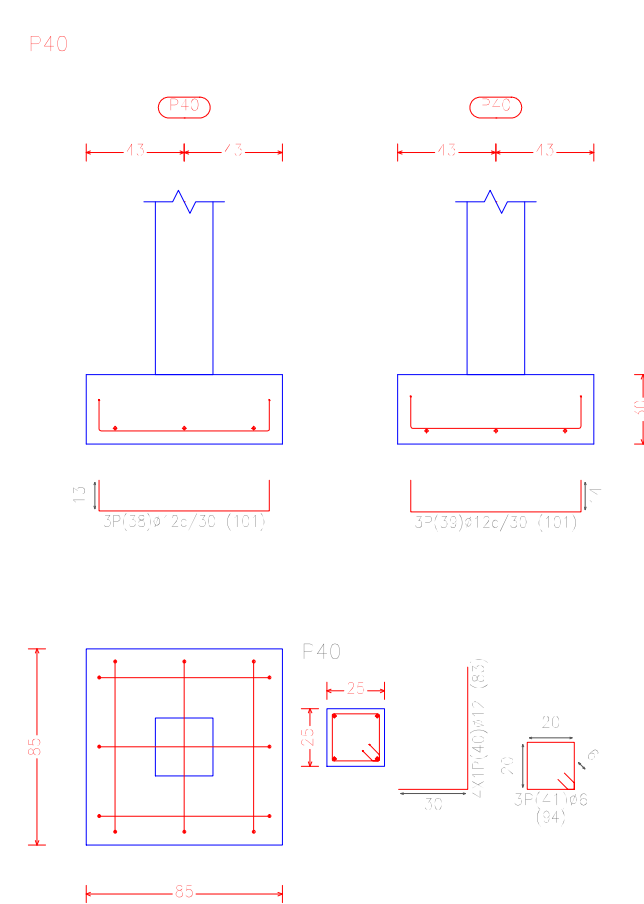
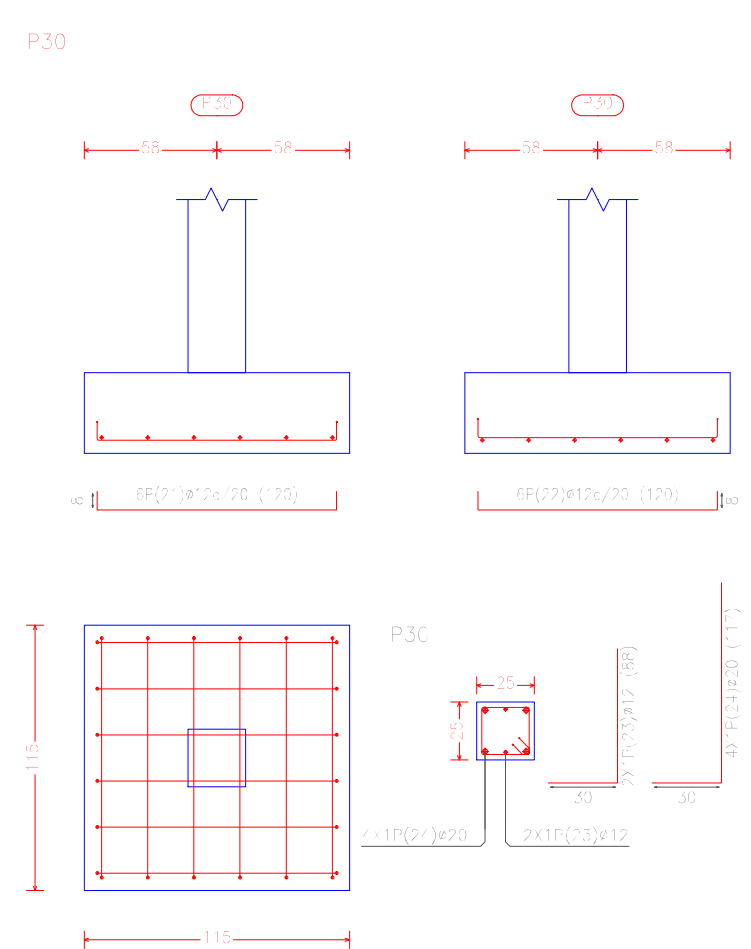
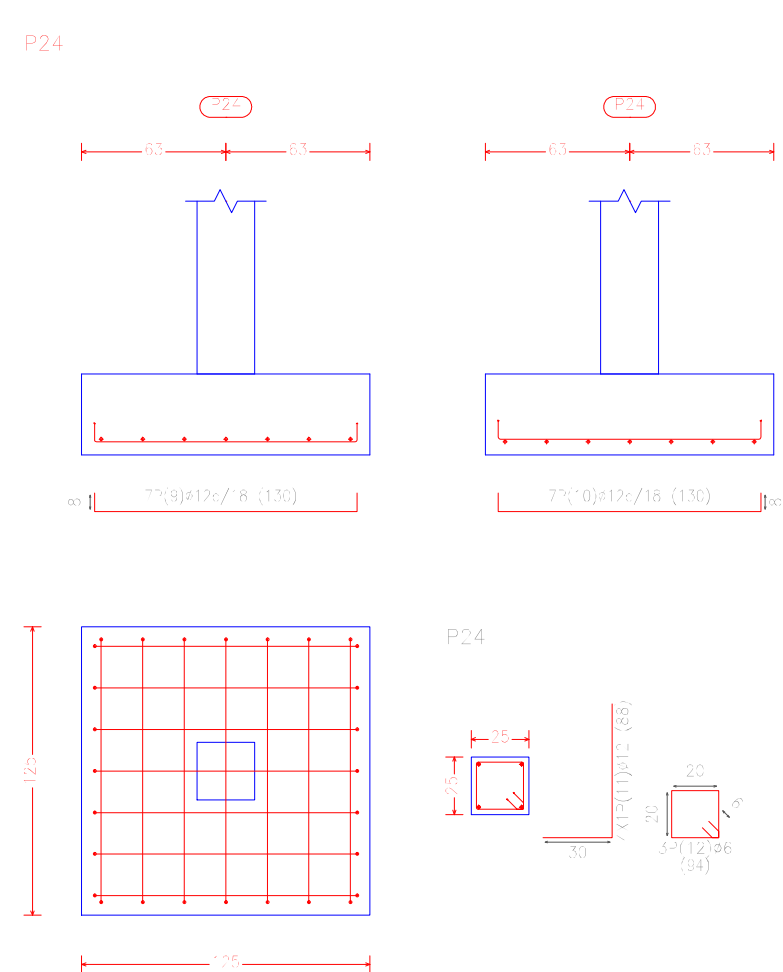
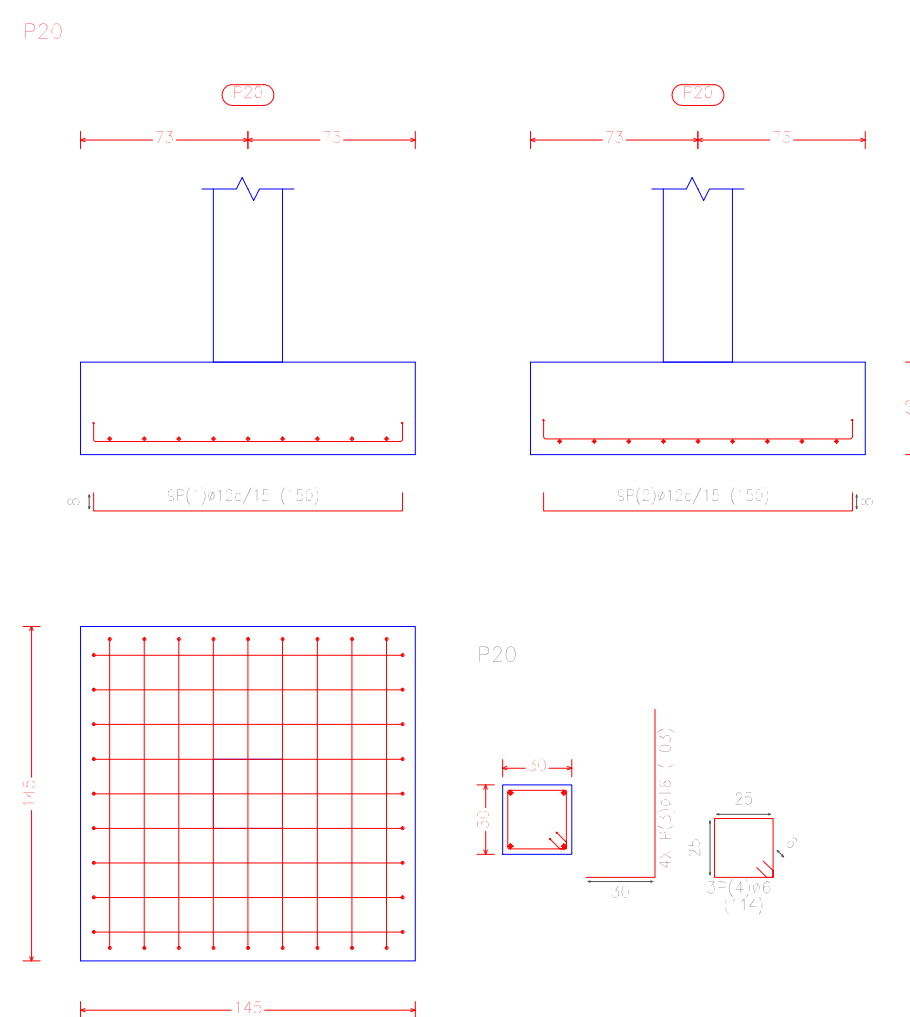
Pos.	Diám.	No.	Long. (cm)	Total (cm)
7	ø12	6	208	1248
8	ø6	22	96	2112

P16=P26

Pos.	Diám.	No.	Long. (cm)	Total (cm)	x 2 (cm)
10	ø12	6	235	1410	2820
11	ø12	6	88	528	1056
12	ø6	15	96	1440	2880



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	Peso+10% (kg)
P1	1	$\phi 12$	3	94	282	2.8
	2	$\phi 12$	3	94	282	2.8
	3	$\phi 12$	3	94	282	2.8
	4	$\phi 6$	3	94	282	0.6
Total=1086						9.0
P2	5	$\phi 12$	3	94	282	2.8
	6	$\phi 12$	3	94	282	2.8
	7	$\phi 12$	3	94	282	2.8
	8	$\phi 6$	3	94	282	0.6
Total=1086						9.0
P3, P11, P22, P33, P41, P42, P43, P45, P46, P50, P51, P52, P53, P54, P56, P57, P58, P61, P62, P63, P64 y P65						
P3	9	$\phi 12$	3	94	282	2.8
	10	$\phi 12$	3	94	282	2.8
	11	$\phi 12$	3	94	282	2.8
	12	$\phi 6$	3	94	282	0.6
Total=1086						9.0
P5	13	$\phi 12$	3	100	300	3.0
	14	$\phi 12$	3	100	300	3.0
	15	$\phi 12$	3	100	300	3.0
	16	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P9	17	$\phi 12$	3	100	300	3.0
	18	$\phi 12$	3	100	300	3.0
	19	$\phi 12$	3	100	300	3.0
	20	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P6	21	$\phi 12$	3	100	300	3.0
	22	$\phi 12$	3	100	300	3.0
	23	$\phi 12$	3	100	300	3.0
	24	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P6	25	$\phi 12$	3	100	300	3.0
	26	$\phi 12$	3	100	300	3.0
	27	$\phi 12$	3	100	300	3.0
	28	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P9	29	$\phi 12$	3	100	300	3.0
	30	$\phi 12$	3	100	300	3.0
	31	$\phi 12$	3	100	300	3.0
	32	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P10	33	$\phi 12$	3	100	300	3.0
	34	$\phi 12$	3	100	300	3.0
	35	$\phi 12$	3	100	300	3.0
	36	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P12	37	$\phi 12$	3	100	300	3.0
	38	$\phi 12$	3	100	300	3.0
	39	$\phi 12$	3	100	300	3.0
	40	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P13	41	$\phi 12$	3	100	300	3.0
	42	$\phi 12$	3	100	300	3.0
	43	$\phi 12$	3	100	300	3.0
	44	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P15, P25, P35 y P37	45	$\phi 12$	3	100	300	3.0
	46	$\phi 12$	3	100	300	3.0
	47	$\phi 12$	3	100	300	3.0
	48	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P15, P25, P35 y P37	49	$\phi 12$	3	100	300	3.0
	50	$\phi 12$	3	100	300	3.0
	51	$\phi 12$	3	100	300	3.0
	52	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P16 y P26	53	$\phi 12$	3	100	300	3.0
	54	$\phi 12$	3	100	300	3.0
	55	$\phi 12$	3	100	300	3.0
	56	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P16 y P26	57	$\phi 12$	3	100	300	3.0
	58	$\phi 12$	3	100	300	3.0
	59	$\phi 12$	3	100	300	3.0
	60	$\phi 6$	3	100	300	0.6
Total=1086						9.0
P19	61	$\phi 12$	3	100	300	3.0
	62	$\phi 12$	3	100	300	3.0
	63	$\phi 12$	3	100	300	3.0
	64	$\phi 6$	3	100	300	0.6
Total=1086						9.0
Total=5580						55.8



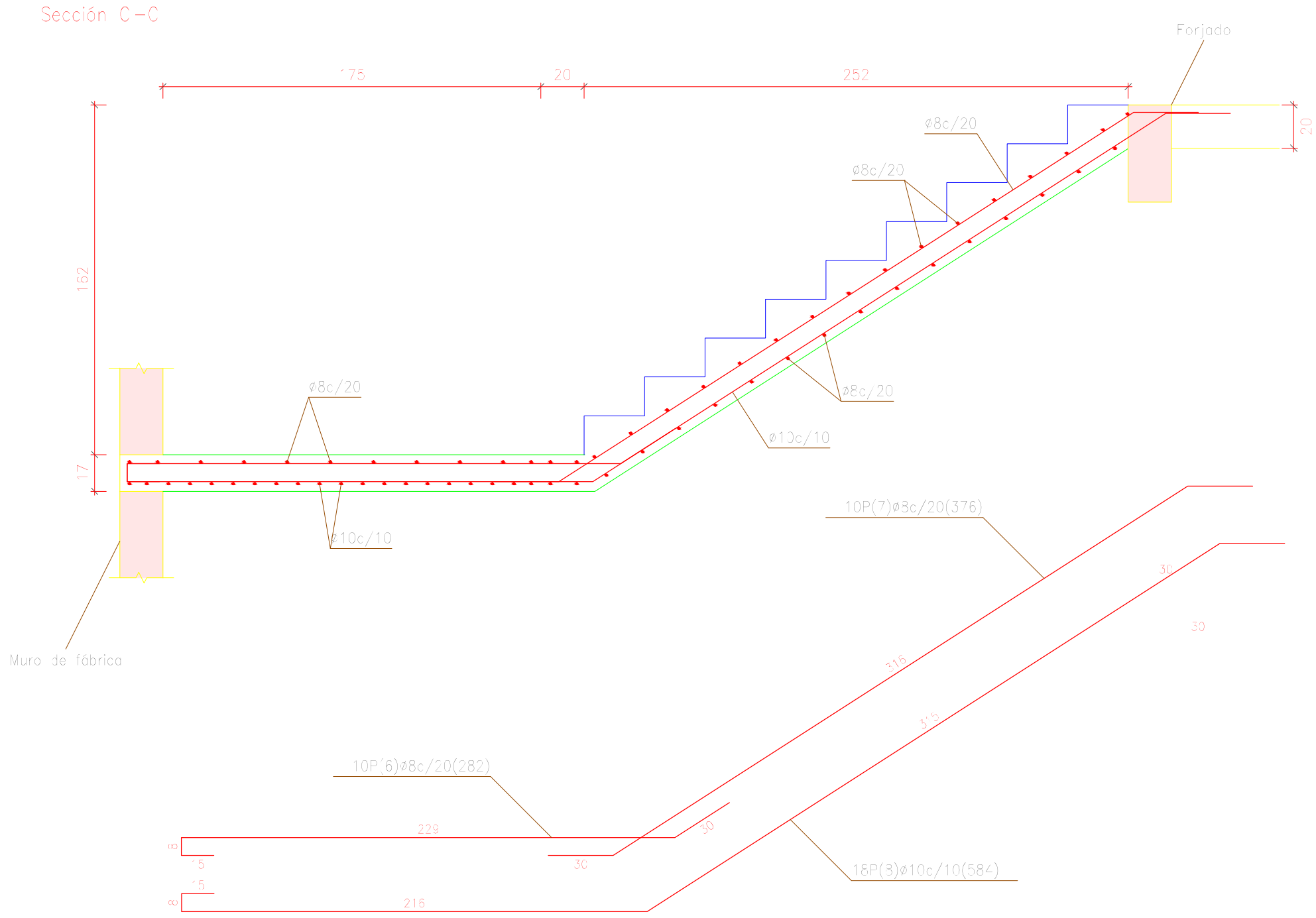
Liberman et al.	Year	Start	End	Total	2000-2005 (%)
FBI	1	1972	9	102	102
	2	1973	9	102	102
	3	1974	9	102	102
FBI	4	1975	9	102	102
	5	1976	9	102	102
	6	1977	9	102	102
FBI	7	1978	9	102	102
	8	1979	9	102	102
	9	1980	9	102	102
FBI	10	1981	9	102	102
	11	1982	9	102	102
	12	1983	9	102	102
FBI	13	1984	9	102	102
	14	1985	9	102	102
	15	1986	9	102	102
FBI	16	1987	9	102	102
	17	1988	9	102	102
	18	1989	9	102	102
FBI	19	1990	9	102	102
	20	1991	9	102	102
	21	1992	9	102	102
FBI	22	1993	9	102	102
	23	1994	9	102	102
	24	1995	9	102	102
FBI	25	1996	9	102	102
	26	1997	9	102	102
	27	1998	9	102	102
FBI	28	1999	9	102	102
	29	2000	9	102	102
	30	2001	9	102	102
FBI	31	2002	9	102	102
	32	2003	9	102	102
	33	2004	9	102	102
FBI	34	2005	9	102	102
	35	2006	9	102	102
	36	2007	9	102	102
FBI	37	2008	9	102	102
	38	2009	9	102	102
	39	2010	9	102	102
FBI	40	2011	9	102	102
	41	2012	9	102	102
	42	2013	9	102	102
FBI	43	2014	9	102	102
	44	2015	9	102	102
	45	2016	9	102	102
FBI	46	2017	9	102	102
	47	2018	9	102	102
	48	2019	9	102	102
FBI	49	2020	9	102	102
	50	2021	9	102	102
	51	2022	9	102	102
FBI	52	2023	9	102	102
	53	2024	9	102	102
	54	2025	9	102	102
FBI	55	2026	9	102	102
	56	2027	9	102	102
	57	2028	9	102	102
FBI	58	2029	9	102	102
	59	2030	9	102	102
	60	2031	9	102	102
FBI	61	2032	9	102	102
	62	2033	9	102	102
	63	2034	9	102	102
FBI	64	2035	9	102	102
	65	2036	9	102	102
	66	2037	9	102	102
FBI	67	2038	9	102	102
	68	2039	9	102	102
	69	2040	9	102	102
FBI	70	2041	9	102	102
	71	2042	9	102	102
	72	2043	9	102	102
FBI	73	2044	9	102	102
	74	2045	9	102	102
	75	2046	9	102	102
FBI	76	2047	9	102	102
	77	2048	9	102	102
	78	2049	9	102	102
FBI	79	2050	9	102	102
	80	2051	9	102	102
	81	2052	9	102	102
FBI	82	2053	9	102	102
	83	2054	9	102	102
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FBI	85	2056	9	102	102
	86	2057	9	102	102
	87	2058	9	102	102
FBI	88	2059	9	102	102
	89	2060	9	102	102
	90	2061	9	102	102
FBI	91	2062	9	102	102
	92	2063	9	102	102
	93	2064	9	102	102
FBI	94	2065	9	102	102
	95	2066	9	102	102
	96	2067	9	102	102
FBI	97	2068	9	102	102
	98	2069	9	102	102
	99	2070	9	102	102
FBI	100	2071	9	102	102
	101	2072	9	102	102
	102	2073	9	102	102
FBI	103	2074	9	102	102
	104	2075	9	102	102
	105	2076	9	102	102
FBI	106	2077	9	102	102
	107	2078	9	102	102
	108	2079	9	102	102
FBI	109	2080	9	102	102
	110	2081	9	102	102
	111	2082	9	102	102
FBI	112	2083	9	102	102
	113	2084	9	102	102
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FBI	115	2086	9	102	102
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	117	2088	9	102	102
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	126	2097	9	102	102
FBI	127	2098	9	102	102
	128	2099	9	102	102
	129	2100	9	102	102
FBI	130	2101	9	102	102
	131	2102	9	102	102
	132	2103	9	102	102
FBI	133	2104	9	102	102
	134	2105	9	102	102
	135	2106	9	102	102
FBI	136	2107	9	102	102
	137	2108	9	102	102
	138	2109	9	102	102
FBI	139	2110	9	102	102
	140	2111	9	102	102
	141	2112	9	102	102
FBI	142	2113	9	102	102
	143	2114	9	102	102
	144	2115	9	102	102
FBI	145	2116	9	102	102
	146	2117	9	102	102
	147	2118	9	102	102
FBI	148	2119	9	102	102
	149	2120	9	102	102
	150	2121	9	102	102
FBI	151	2122	9	102	102
	152	2123	9	102	102
	153	2124	9	102	102
FBI	154	2125	9	102	102
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	156	2127	9	102	102
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	159	2130	9	102	102
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	162	2133	9	102	102
FBI	163	2134	9	102	102
	164	2135	9	102	102
	165	2136	9	102	102
FBI	166	2137	9	102	102
	167	2138	9	102	102
	168	2139	9	102	102
FBI	169	2140	9	102	102
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FBI	187	2158	9	102	102
	188	2159	9	102	102
	189	2160	9	102	102
FBI	190	2161	9	102	102
	191	2162	9	102	102
	192	2163	9	102	102
FBI	193	2164	9	102	102
	194	2165	9	102	102
	195	2166	9	102	102
FBI	196	2167	9	102	102
	197	2168	9	102	102
	198	2169	9	102	102
FBI	199	2170	9	102	102
	200	2171	9	102	102
	201	2172	9	102	102
FBI	202	2173	9	102	102
	203	2174	9	102	102
	204	2175	9	102	102
FBI	205	2176	9	102	102
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	207	2178	9	102	102
FBI	208	2179	9	102	102
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FBI	211	2182	9	102	102
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FBI	214	2185	9	102	102
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FBI	217	2188	9	102	102
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FBI	220	2191	9	102	102
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	225	2196	9	102	102
FBI	226	2197	9	102	102
	227	2198	9	102	102
	228	2199	9	102	102
FBI	229	2200	9	102	102
	230	2201	9	102	102
	231	2202	9	102	102
FBI	232	2203	9	102	102
	233	2204	9	102	102
	234	2205	9	102	102
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	236	2207	9	102	102
	237	2208	9	102	102
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	239	2210	9	102	102
	240	2211	9	102	102
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	242	2213	9	102	102
	243	2214	9	102	102
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	245	2216	9	102	102
	246	2217	9	102	102
FBI	247	2218	9	102	102
	248	2219	9	102	102
	249	2220	9	102	102
FBI	250	2221	9	102	102
	251	2222	9	102	102
	252	2223	9	102	102
FBI	253	2224	9	102	102
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	255	2226	9	102	102
FBI	256	2227	9	102	102
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FBI	259	2230	9	102	102
	260	2231	9	102	102
	261	2232	9	102	102
FBI	262	2233	9	102	102
	263	2234	9	102	102
	264	2235	9	102	102
FBI	265	2236	9	102	102
	266	2237	9	102	102
	267	2238	9	102	102
FBI	268	2239	9	102	102
	269	224			

Resumen Acero Cimentación		Long. total (m)	Peso = 1.0% (kg)	Total
Despiece dimensional				
AH=5000N	Ø6	195,2	48	
	Ø12	869,8	849	
	Ø16	19,4	54	
	Ø20	11,1	30	961

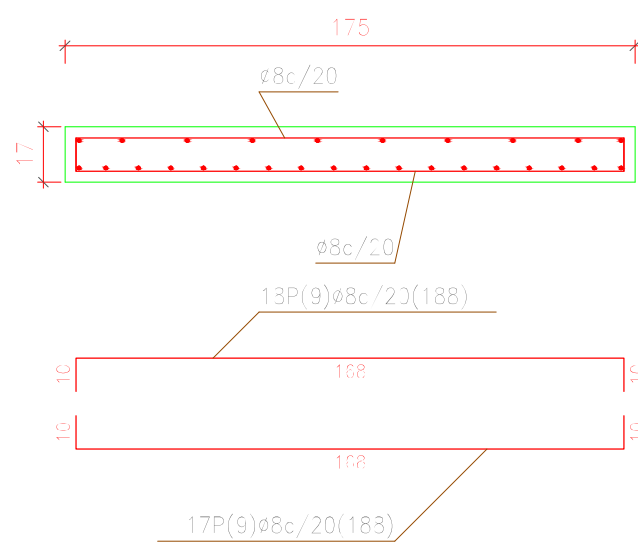
Elemento	Pos.	Díam.	No.	Long. (cm)	Total (cm)	AH=500CN (kg)
Fierros	1	Ø8	1	30	30	2.2
	2	Ø8	23	85	1955	9.5
	3	Ø8	25	70	1750	8.7
	4	Ø8	190	30	5700	1.5
	5	Ø8	200	30	6000	1.6
	6	Ø8	200	30	6000	1.6
	7	Ø8	31	200	6200	2.5
	8	Ø8	80	20	1600	0.4
	9	Ø8	108	70	7560	2.9
	10	Ø8	230	225	51750	1.1
	11	Ø8	1	1	1	0.1
	12	Ø8	143	143	10341	0.4
	13	Ø8	270	270	19440	0.8
	14	Ø8	2	2	2	0.2
	15	Ø8	75	100	7500	0.3
	16	Ø8	340	340	24140	1.0
	17	Ø8	5	5	35	0.01
	18	Ø8	63	63	4527	0.2
	19	Ø8	740	740	52840	2.3
	20	Ø8	74	74	5382	0.2
	21	Ø8	955	955	69615	2.7
	22	Ø8	5	5	35	0.01
	23	Ø8	102	102	7344	0.3
	24	Ø8	320	320	22720	1.0
	25	Ø8	370	370	26690	1.1
	26	Ø8	530	530	38610	1.6
	27	Ø8	700	700	50400	2.1
	28	Ø8	78	78	5586	0.2
	29	Ø8	650	650	46550	1.9
	30	Ø8	675	675	48375	2.0
	31	Ø8	650	650	46550	1.9
	32	Ø8	680	680	49120	2.0
	33	Ø8	685	685	49555	2.0
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230	Ø8	685	685	49555	2.0	
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232	Ø8	685	685	49555	2.0	
233	Ø8	685	685	49555	2.0	
234	Ø8	685	685	49555	2.0	
235	Ø8	685	685	49555	2.0	
236	Ø8	685				

Tramo 1	
Ámbito	1.750 m
Espesor	0.17 m
Huella	0.260 m
Contrahuella	0.180 m
Geometría	Desnivel que salva
	3.42 m
	Nº de escalones
Cargas	Planta final
	Primer piso
	Planta inicial
Materiales	Nivel
	Nivel 0+00
Cargas	Peso propio
	0.425 t/m ²
	Peldañeoado (Hormigonado con la losa)
Materiales	0.189 t/m ²
	Solado
	0.110 t/m ²
Cargas	Barandillas
	0.190 t/m
	Sobrecarga de uso
Materiales	0.300 t/m ²
	Hormigón
	H=25 , Control Normal
Materiales	Acero
	AH-500 , Control Normal
Rec. geométrico	
3.0 cm	

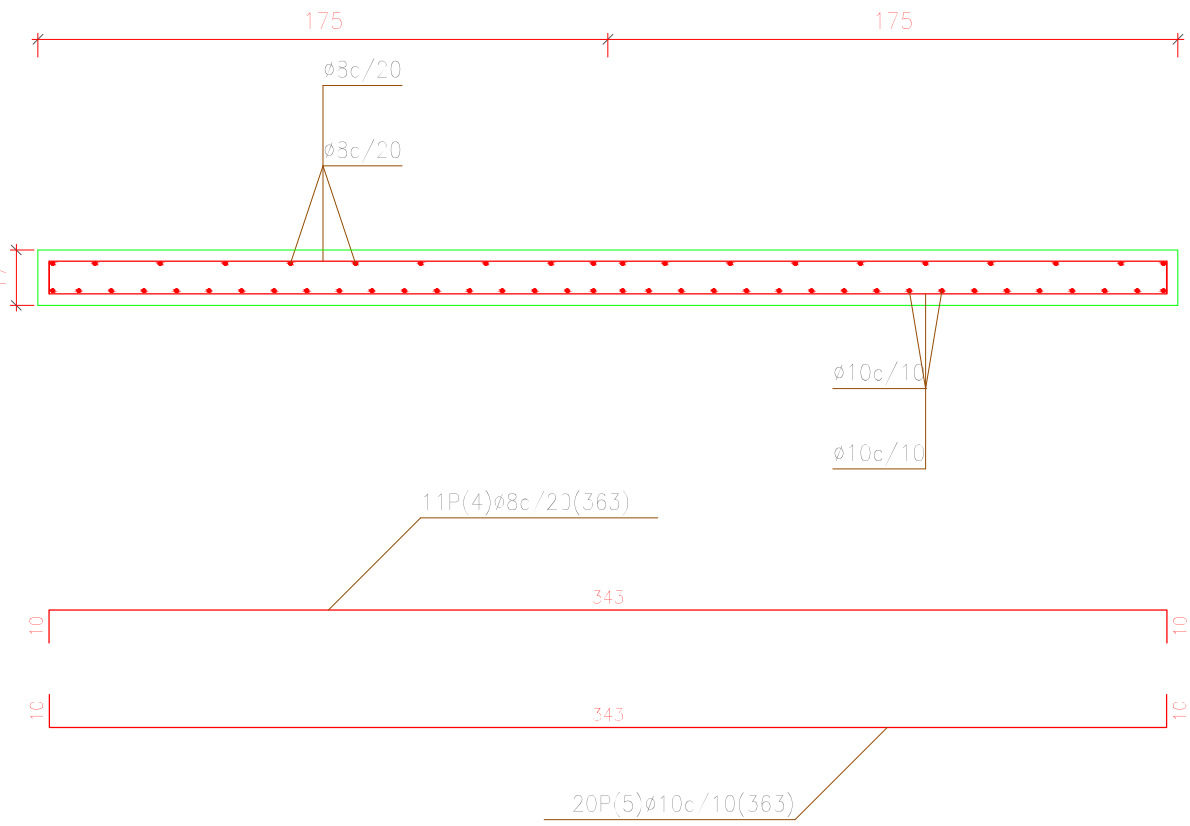
Sección C-C



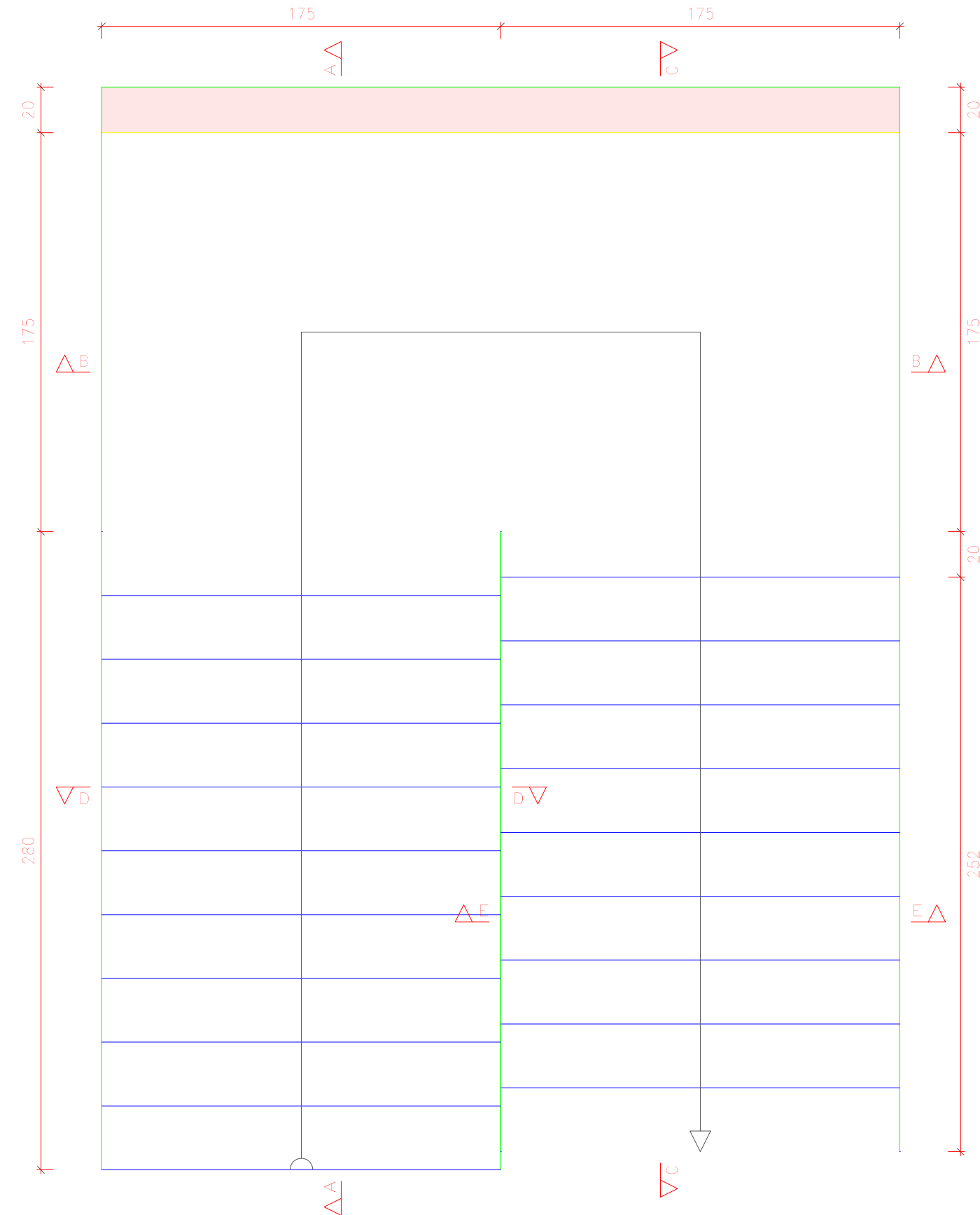
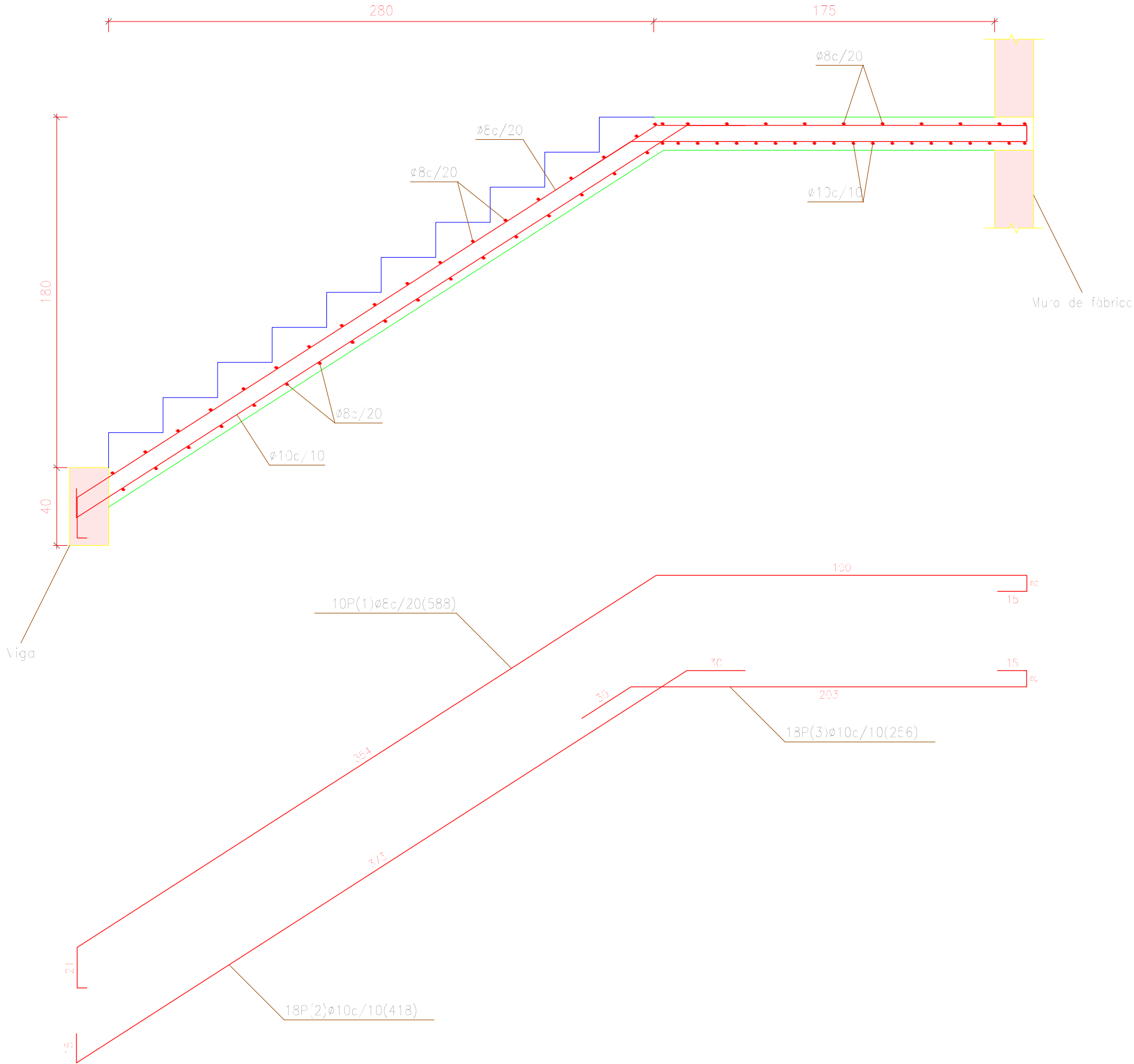
Sección D-D
Sección E-E



Sección B-B



Sección A-A



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (+g)
Fondos - Tramo 1	1	ø8	10	395	3950	13.5
	2	ø8	15	215	3225	10.4
	3	ø8	15	235	3525	11.4
	4	ø8	11	363	3993	13.5
	5	ø8	20	383	7660	26.1
	6	ø8	10	282	2820	9.4
	7	ø8	10	316	3160	10.5
	8	ø8	15	384	5760	19.2
	9	ø8	10	363	3630	12.4
	10	ø8	10	363	3630	12.4
Total						151.3
						151.3

Resumen Acero Escalera	Long. total (m)	Peso+10% (kg)	Total
AH-500CN ø8	296.1	129	
AH-500CN ø10	299.0	203	332



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FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

Nombre: ALEXANDER MARTINEZ RUEDA

Plano: PLANO DE ESCALERA
Proyecto: DISEÑO ESTRUCTURAL DEL CENTRO DE SALUD CANASMORO

Materia: PROYECTO II CIV502
Escala: 1:25
Fecha: 12/12/2019

Lámina
15
/
15