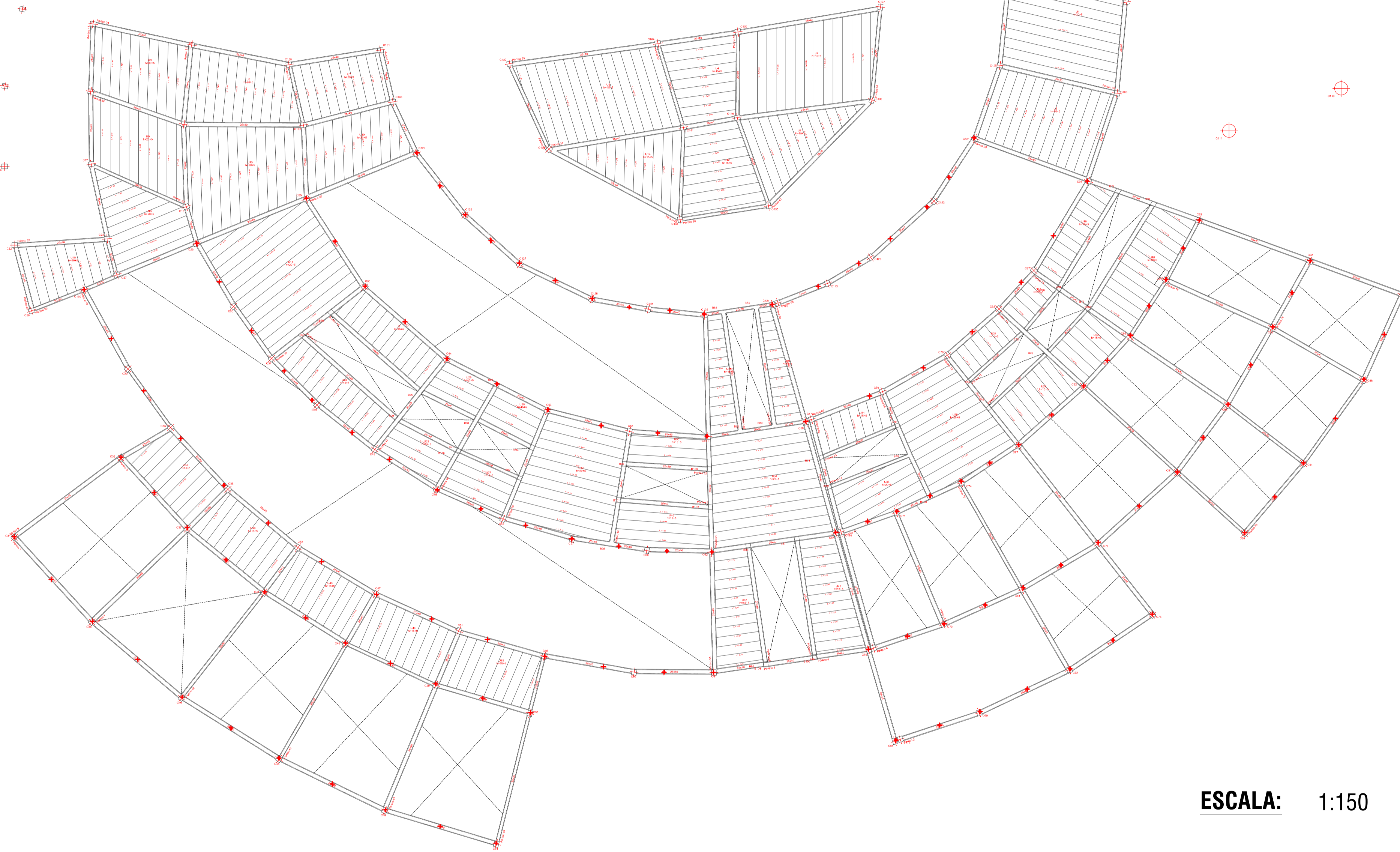


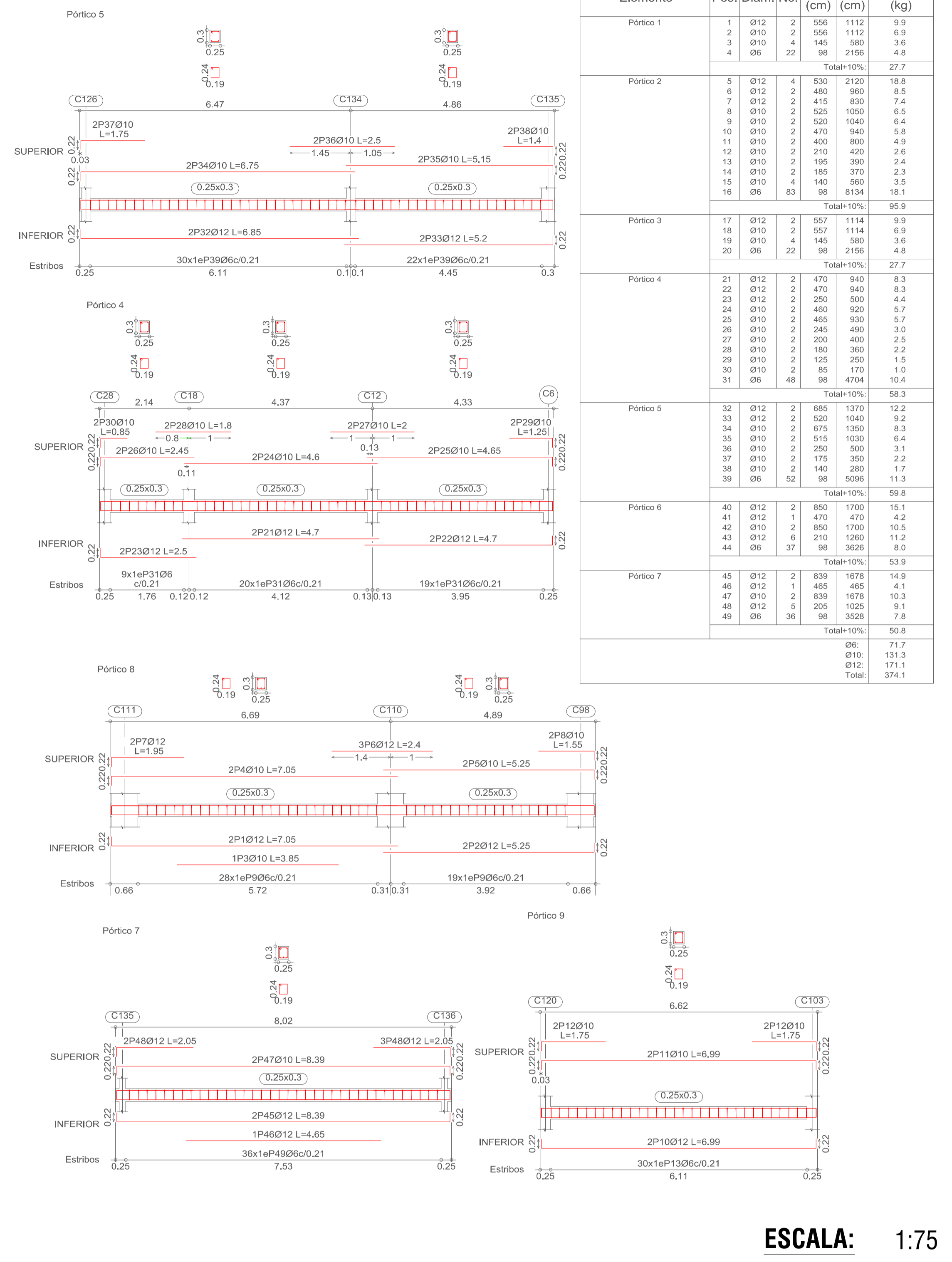
Tafo de características de forjados de viguetas (Grupo 4)
 Forjados U3, U4, U6, U9, U11, U12, U13, U17, U20, U31, U35 y U37
FORJADO DE VIGUETAS DE HORMIGÓN
 Canto de bovedilla: 20 cm
 Espesor capa compresión: 5 cm
 Intereje: 50 cm
 Bovedilla: De poliestireno
 Ancho del nervio: 12 cm
 Volumen de hormigón: 0.114 m³/m²
 Peso propio: 2.80 kN/m² (Simple), 3.76 kN/m² (Doble)
 Nota: Consultar los detalles referentes a enlacas con forjados de la estructura principal y de las zonas macizadas.

NIVEL LOSA
 Refuerzo: Horizontal
 Hormigón: H-25 Control Normal
 Aceros en forjados: AH-500 Control Normal
 M: Momento factor de cálculo por metro de ancho (en kNm)
 V: Constante de cálculo por metro de ancho (kg/m)
 Escala: 1:50

Forjados U1, U2, U5, U7, U8, U10, U14, U15, U16, U18, U19, U21, U22, U23, U24, U25, U26, U27, U28, U29, U30, U32, U33, U34, U36, U38, U39, U40, U41, U42 y U43
FORJADO DE VIGUETAS DE HORMIGÓN
 Canto de bovedilla: 15 cm
 Espesor capa compresión: 5 cm
 Intereje: 50 cm
 Bovedilla: De poliestireno
 Ancho del nervio: 12 cm
 Volumen de hormigón: 0.098 m³/m²
 Peso propio: 2.40 kN/m² (Simple), 3.12 kN/m² (Doble)
 Nota: Consultar los detalles referentes a enlacas con forjados de la estructura principal y de las zonas macizadas.

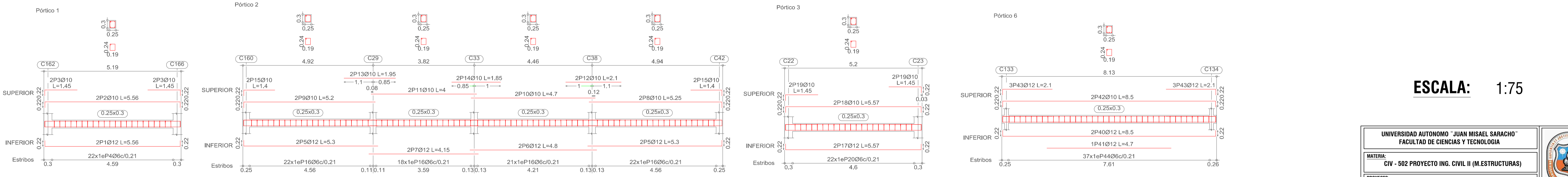


ESCALA: 1:150



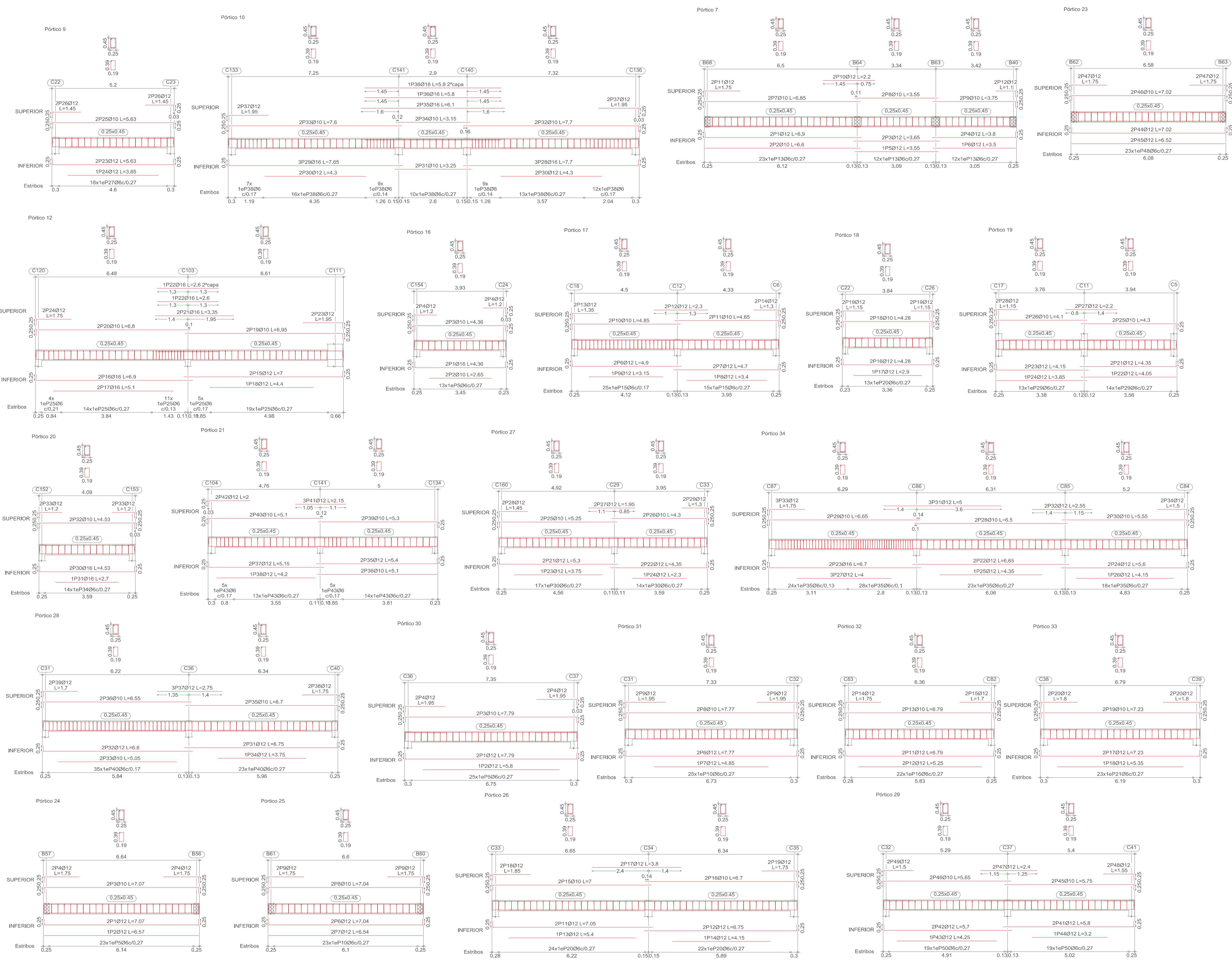
Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 1	1	Ø12	2	556	1112	9.9	
	2	Ø10	2	556	1112	6.9	
	3	Ø12	4	145	580	3.6	
	4	Ø6	22	98	2156	4.8	
Total+10%:						27.7	
Pórtico 2	5	Ø12	4	530	2120	18.8	
	6	Ø12	2	480	960	8.5	
	7	Ø12	2	415	830	7.4	
	8	Ø10	2	525	1050	6.5	
	9	Ø10	2	520	1040	6.4	
	10	Ø10	2	470	940	5.8	
	11	Ø10	2	400	800	4.9	
	12	Ø10	2	210	420	2.6	
	13	Ø10	2	195	390	2.4	
	14	Ø10	2	185	370	2.3	
	15	Ø10	4	140	560	3.5	
	16	Ø6	83	98	8134	18.1	
	Total+10%:						95.9
	Pórtico 3	17	Ø12	2	557	1114	9.9
		18	Ø10	2	557	1114	6.9
19		Ø10	4	145	580	3.6	
20		Ø6	22	98	2156	4.8	
Total+10%:						27.7	
Pórtico 4	21	Ø12	2	470	940	8.3	
	22	Ø12	2	470	940	8.3	
	23	Ø12	2	250	500	4.4	
	24	Ø10	2	460	920	5.7	
	25	Ø10	2	465	930	5.7	
	26	Ø10	2	245	490	3.0	
	27	Ø10	2	200	400	2.5	
	28	Ø10	2	180	360	2.2	
	29	Ø10	2	125	250	1.5	
	30	Ø10	2	85	170	1.0	
	31	Ø6	48	98	4704	10.4	
Total+10%:						58.3	
Pórtico 5	32	Ø12	2	685	1370	12.2	
	33	Ø12	2	520	1040	9.2	
	34	Ø10	2	675	1350	8.3	
	35	Ø10	2	615	1230	6.4	
	36	Ø10	2	250	500	3.1	
	37	Ø10	2	175	350	2.2	
	38	Ø10	2	140	280	1.7	
	39	Ø6	52	98	5096	11.3	
	Total+10%:						59.8
Pórtico 6	40	Ø12	2	850	1700	15.1	
	41	Ø12	1	470	470	4.2	
	42	Ø10	2	850	1700	10.5	
	43	Ø12	6	210	1260	11.2	
44	Ø6	37	98	3626	8.0		
Total+10%:						53.9	
Pórtico 7	45	Ø12	2	839	1678	14.9	
	46	Ø12	1	465	465	4.1	
	47	Ø10	2	839	1678	10.3	
	48	Ø12	5	205	1025	9.1	
	49	Ø6	36	98	3528	7.8	
Total+10%:						50.8	
Ø6: 71.7							
Ø10: 131.3							
Ø12: 171.1							
Total: 374.1							

ESCALA: 1:75



ESCALA: 1:75

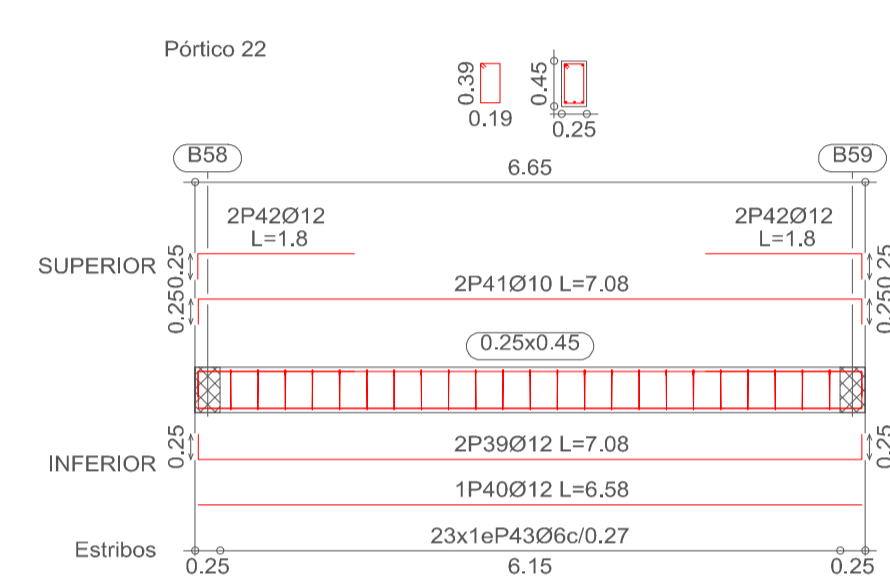
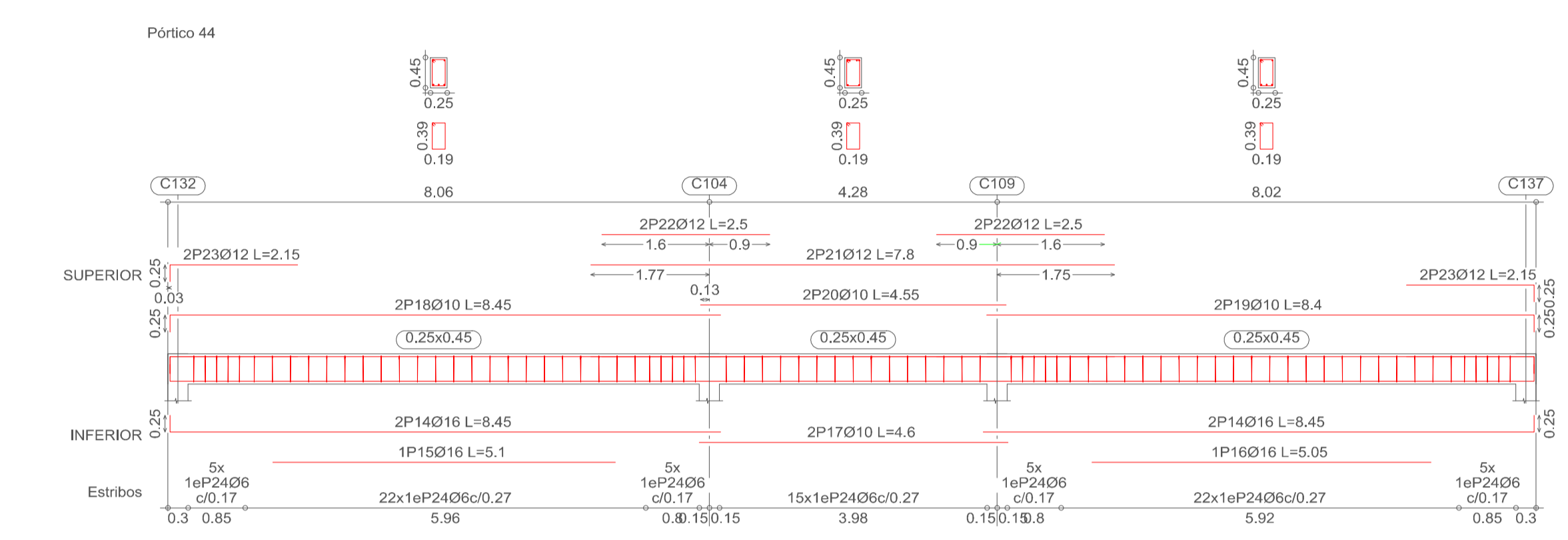
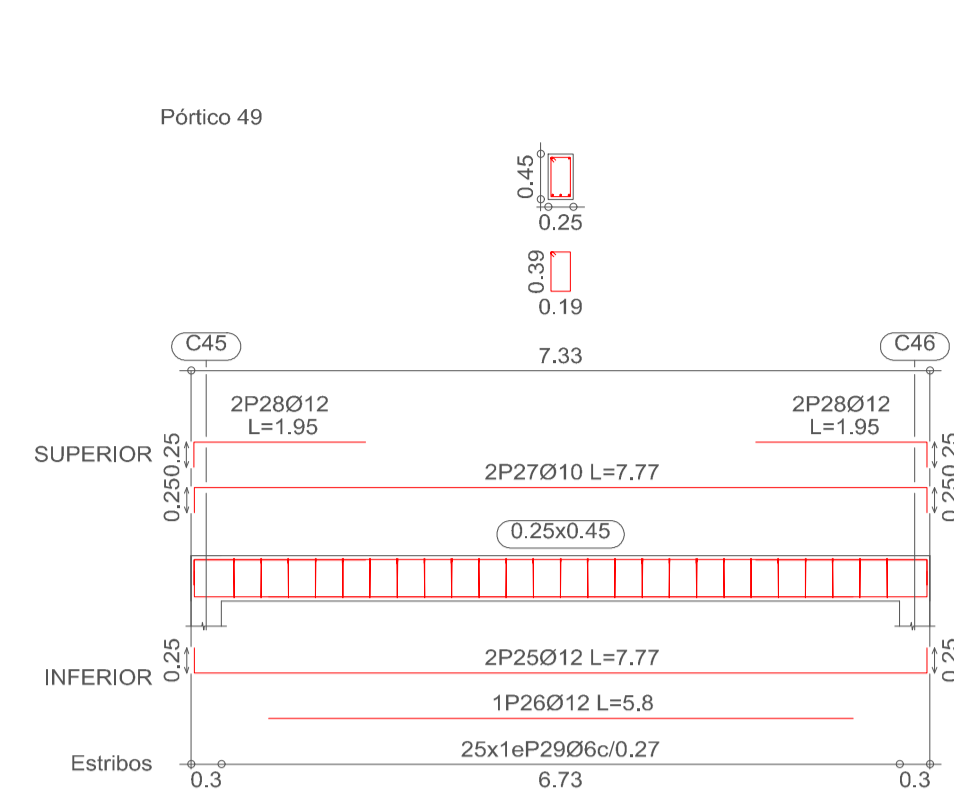
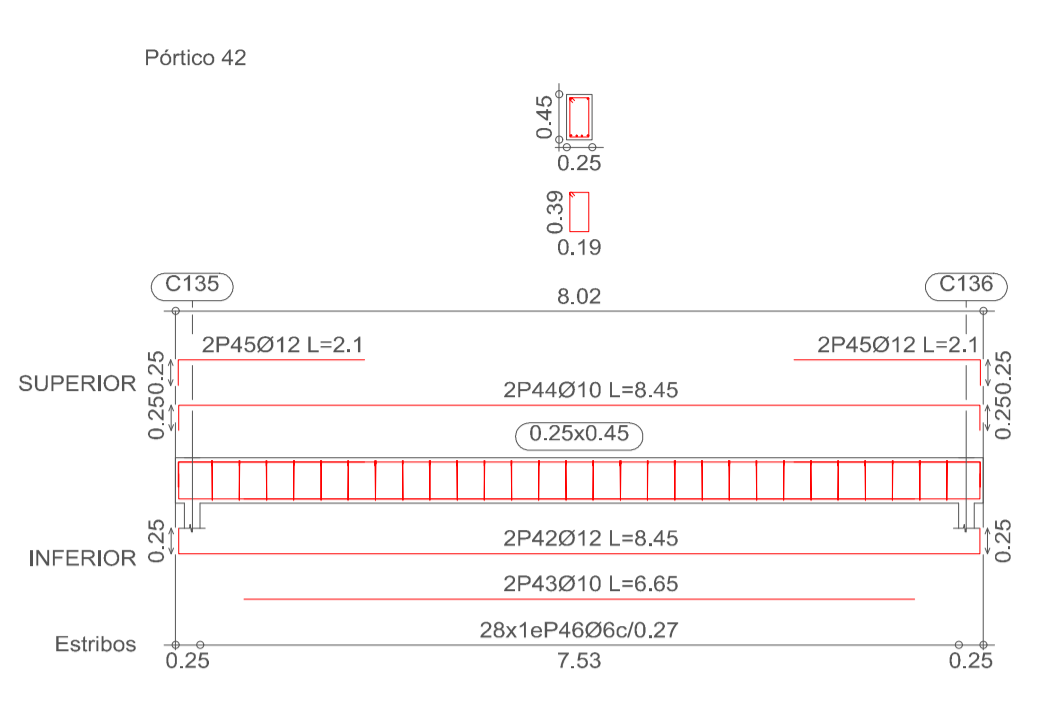
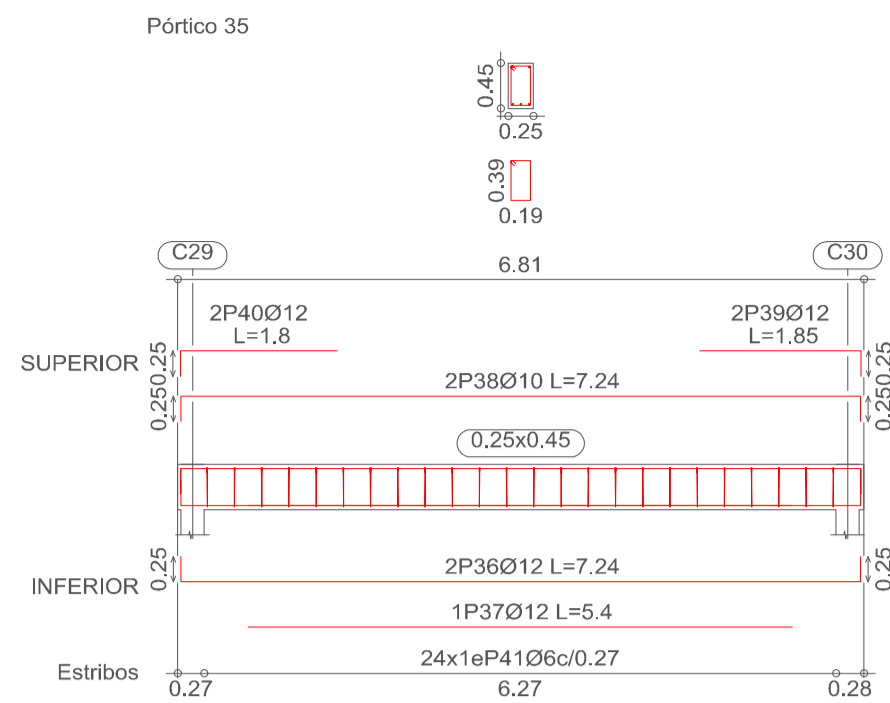
UNIVERSIDAD AUTÓNOMA "JUAN MISSEL SARACHO" FACULTAD DE CIENCIAS Y TECNOLOGÍA		
MATERIA: CIV - 502 PROYECTO ING. CIVIL II (M. ESTRUCTURAS)		
PROYECTO: DISEÑO ESTRUCTURAL CONSTRUCCIÓN CENTRO INTEGRAL SOCIAL Y CULTURAL ENTRE RÍOS		
DESCRIPCIÓN: PLANO EN PLANTA SOBRECIMENTOS 3 VIGAS DE NIVEL DE LOSA	UNIVERSITARIO: ANDRÉS FERNÁNDEZ FIGUEROA	LAMINA: 11
FECHA: MAYO 2023	ESCALA: INDICADA	



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 7	1	Ø12	2	690	1380	12.3	
	2	Ø10	2	660	1320	8.1	
	3	Ø12	2	365	730	6.5	
	4	Ø12	2	380	760	6.7	
	5	Ø12	1	355	355	3.2	
	6	Ø12	1	350	350	3.1	
	7	Ø10	2	685	1370	8.4	
	8	Ø10	2	355	710	4.4	
	9	Ø10	1	370	370	4.6	
	10	Ø12	2	220	440	3.9	
	11	Ø12	2	175	350	3.1	
	12	Ø12	1	220	220	2.0	
	13	Ø6	47	128	6016	13.4	
Total+10%:						67.7	
Pórtico 8	14	Ø12	2	670	1340	11.8	
	15	Ø12	2	610	1220	10.9	
	16	Ø12	1	580	580	5.1	
	17	Ø12	1	370	370	3.3	
	18	Ø10	2	665	1330	8.2	
	19	Ø10	2	605	1210	7.5	
	20	Ø12	2	260	520	4.6	
	21	Ø12	2	180	360	3.2	
	22	Ø6	42	128	5376	11.9	
	Total+10%:						73.2
	Pórtico 9	23	Ø12	2	563	1126	10.0
24		Ø12	1	385	385	3.4	
25		Ø12	2	663	1326	6.9	
26		Ø12	4	145	580	5.1	
27		Ø6	18	128	2304	5.1	
Total+10%:						33.6	
Pórtico 10		28	Ø16	3	770	2310	36.5
	29	Ø16	3	765	2295	36.2	
	30	Ø12	4	430	1720	15.3	
	31	Ø10	2	325	650	4.0	
	32	Ø10	2	770	1540	9.5	
	33	Ø10	3	760	2280	9.4	
	34	Ø10	2	315	630	3.9	
	35	Ø16	2	610	1220	19.3	
	36	Ø16	2	560	1120	18.3	
	37	Ø12	4	195	780	6.9	
	38	Ø6	76	128	9728	21.6	
	Total+10%:						199.0
	Pórtico 22	39	Ø12	2	708	1416	12.6
		40	Ø12	1	658	658	5.8
41		Ø12	2	708	1416	8.7	
42		Ø12	4	180	720	6.4	
43		Ø6	23	128	2944	6.5	
Total+10%:						44.0	
Pórtico 23	44	Ø12	2	702	1404	12.5	
	45	Ø12	2	652	1304	11.6	
	46	Ø12	2	702	1404	8.7	
	47	Ø12	4	175	700	6.2	
	48	Ø6	23	128	2944	6.5	
	Total+10%:						50.1
	Ø6:						71.7
	Ø10:						104.4
Ø12:						193.2	
Ø16:						121.3	
Total:						487.6	
Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 11	1	Ø16	2	665	1330	21.0	
	2	Ø12	2	600	1200	10.7	
	3	Ø12	2	540	1080	9.6	
	4	Ø12	1	455	455	4.0	
	5	Ø12	1	425	425	3.8	
	6	Ø10	2	380	760	4.7	
	7	Ø10	2	655	1310	8.1	
	8	Ø10	2	595	1190	7.3	
	9	Ø10	2	535	1070	6.6	
	10	Ø16	3	290	870	13.7	
	11	Ø16	3	285	855	13.5	
	12	Ø12	2	155	310	2.8	
	13	Ø12	2	145	290	2.6	
	14	Ø6	68	128	8704	19.3	
Total+10%:						140.5	
Pórtico 12	15	Ø12	2	700	1400	12.4	
	16	Ø12	2	690	1380	12.4	
	17	Ø16	2	510	1020	16.1	
	18	Ø12	1	440	440	3.9	
	19	Ø10	2	695	1390	8.6	
	20	Ø10	2	680	1360	8.4	
	21	Ø16	2	335	670	10.6	
	22	Ø12	2	260	520	8.2	
	23	Ø12	2	195	390	3.5	
	24	Ø12	2	175	350	3.1	
	25	Ø6	53	128	6784	15.1	
	Total+10%:						122.9
	Pórtico 13	26	Ø16	2	425	858	13.5
		27	Ø10	2	255	510	3.1
		28	Ø10	2	429	858	5.3
29		Ø12	4	115	460	4.1	
30		Ø6	13	128	1664	3.7	
Total+10%:						32.7	
Pórtico 14	31	Ø16	2	437	874	13.8	
	32	Ø10	2	260	520	3.2	
	33	Ø10	2	437	874	5.4	
	34	Ø12	4	120	480	4.3	
	35	Ø6	13	128	1664	3.7	
Total+10%:						33.4	
Pórtico 15	36	Ø16	2	440	880	13.9	
	37	Ø10	2	260	520	3.2	
	38	Ø10	2	440	880	5.4	
	39	Ø12	4	120	480	4.3	
	40	Ø6	13	128	1664	3.7	
Total+10%:						33.6	
Ø6:						50.1	
Ø12:						76.1	
Ø16:						160.8	
Total:						363.1	

ESCALA: 1:75

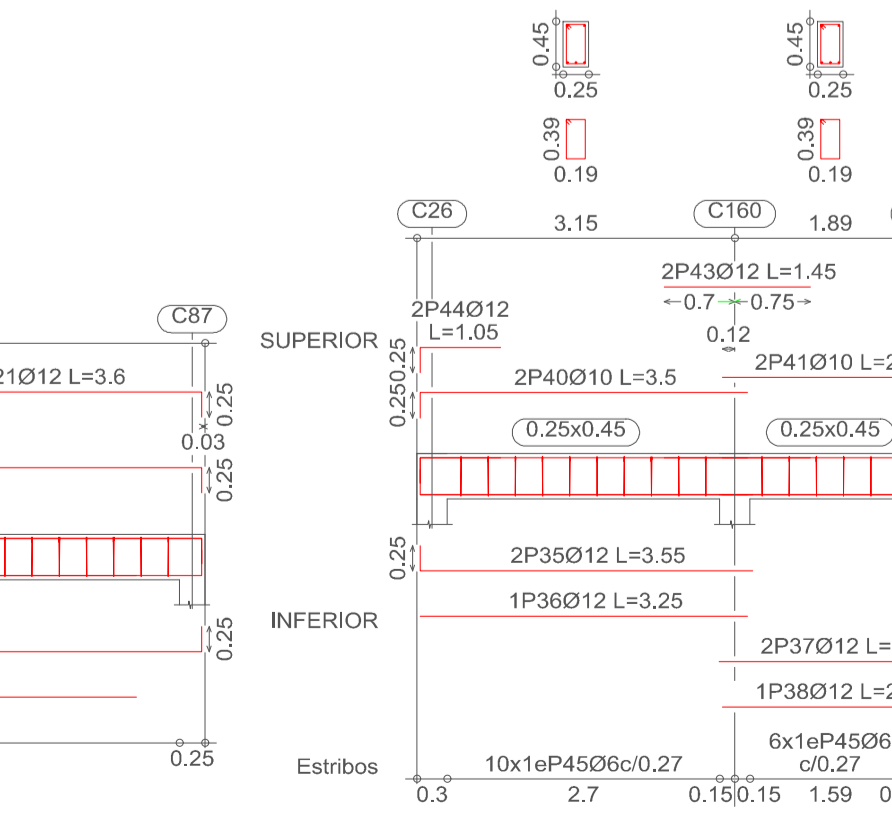
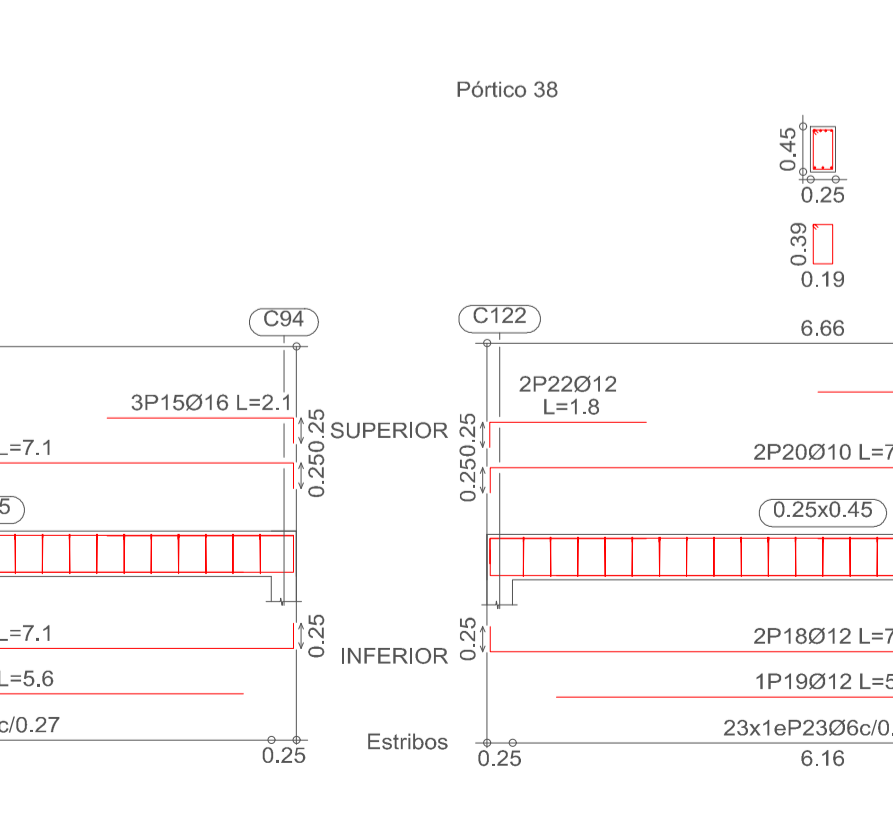
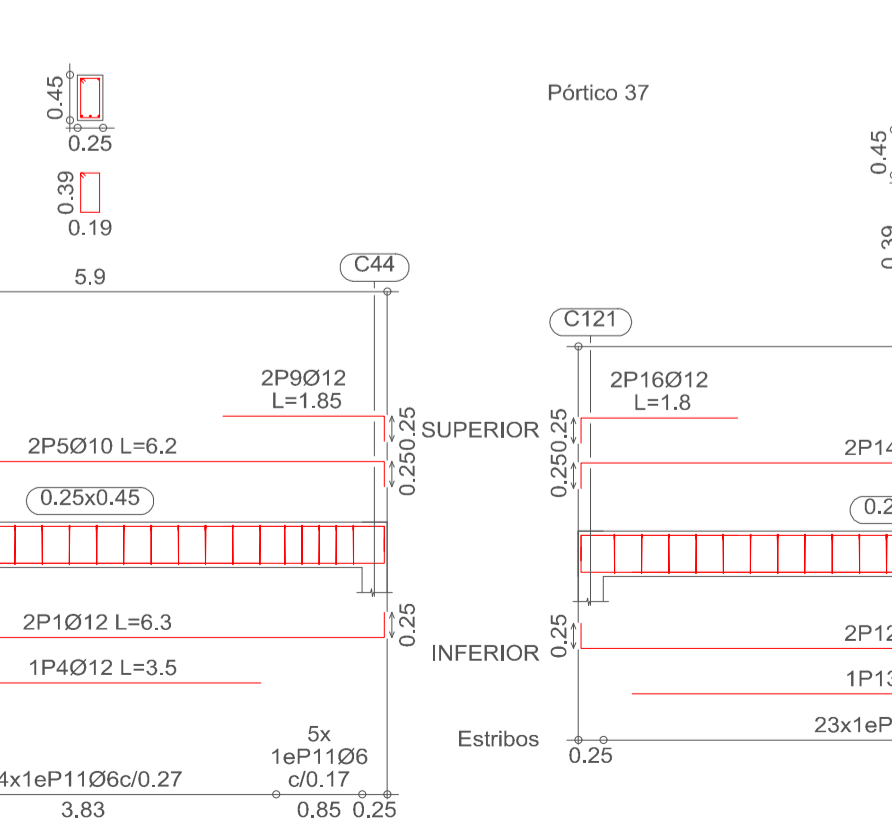
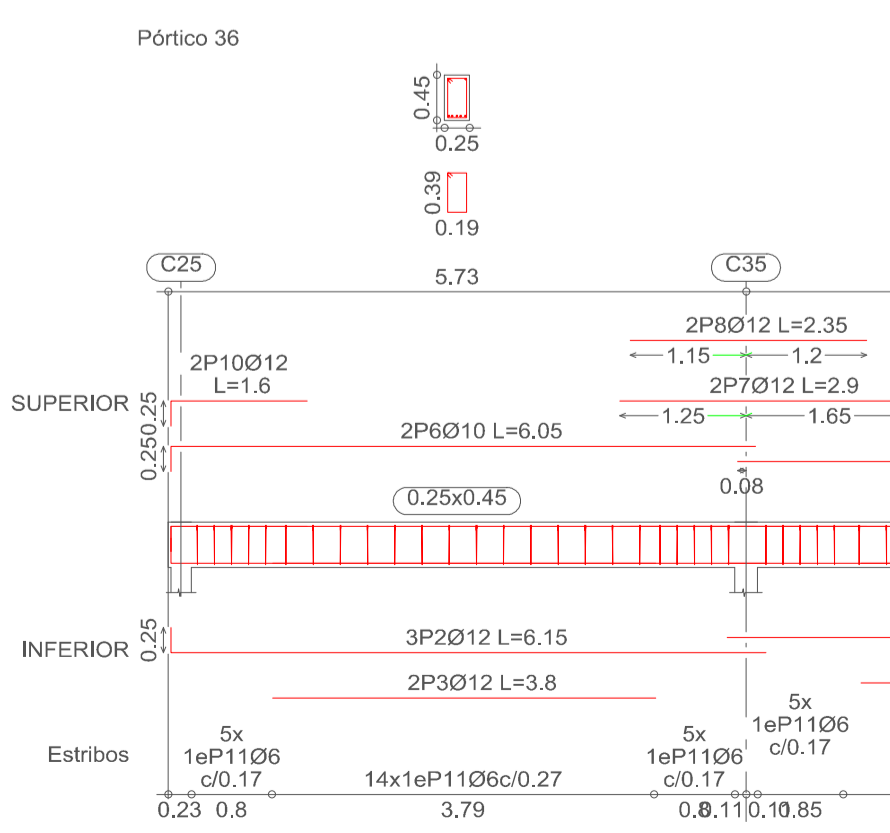
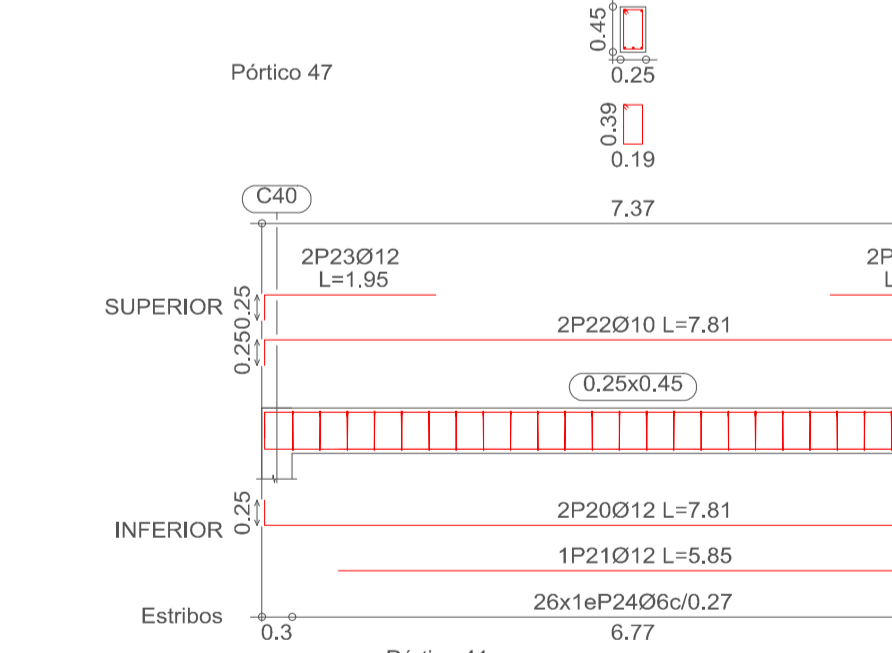
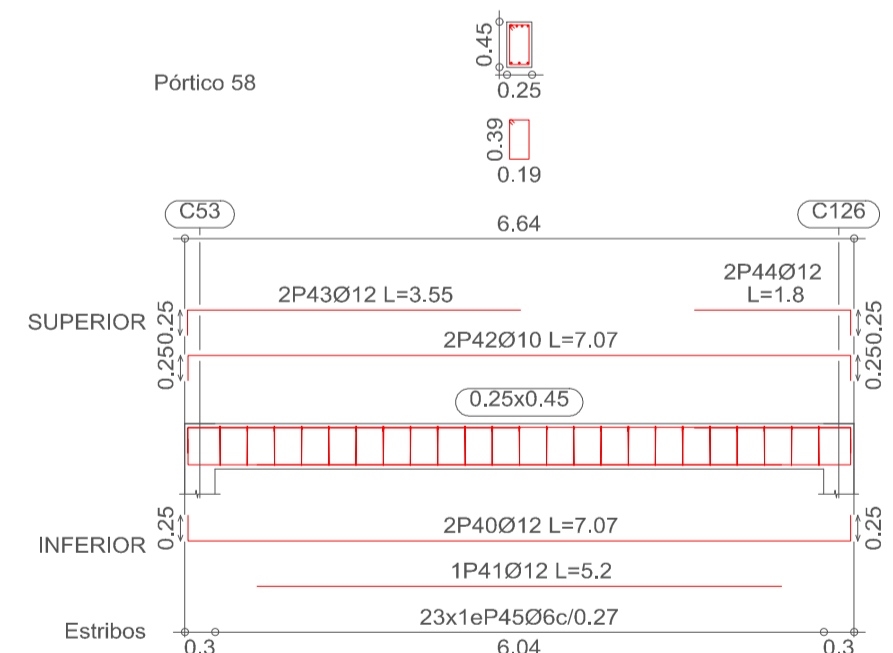
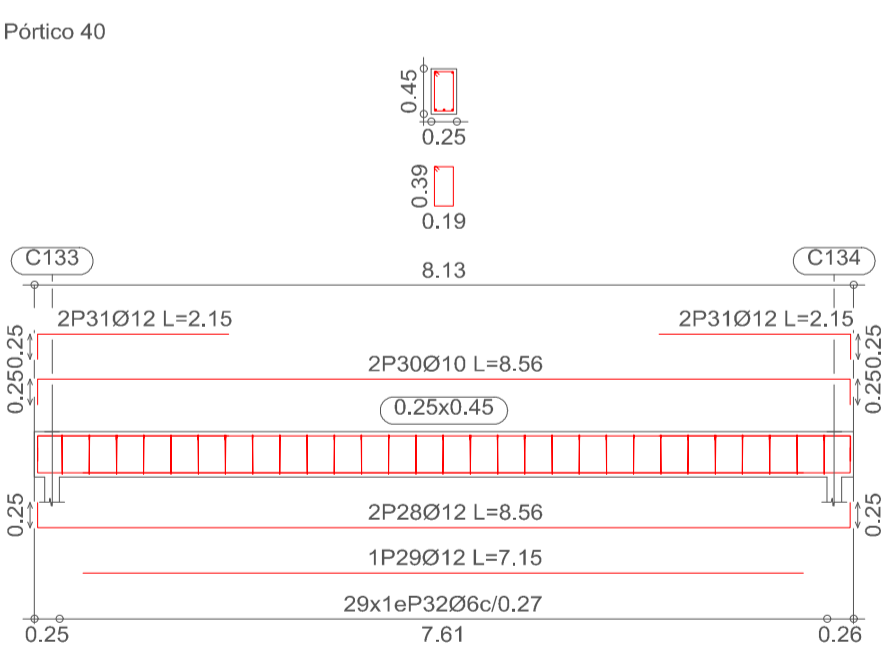
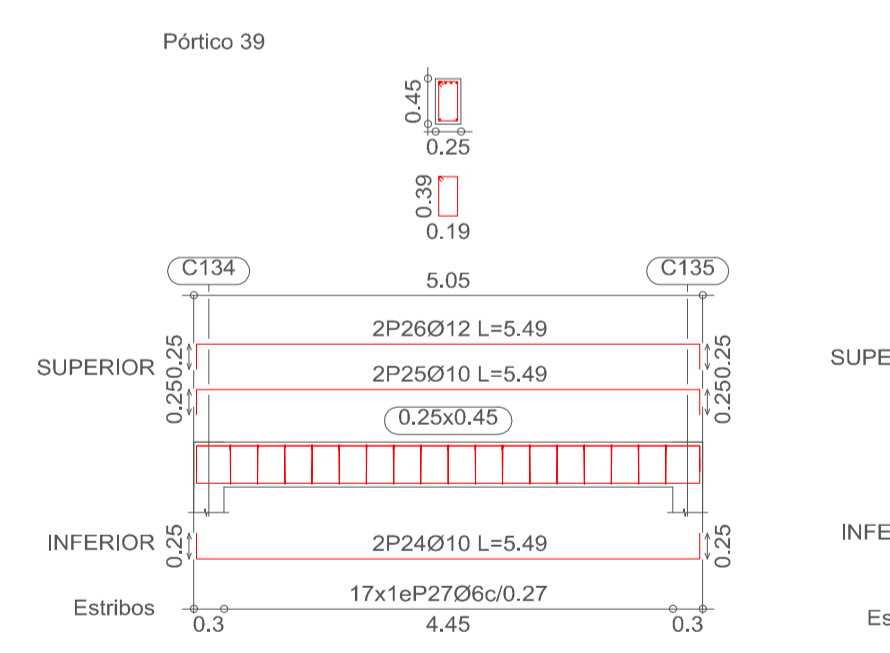
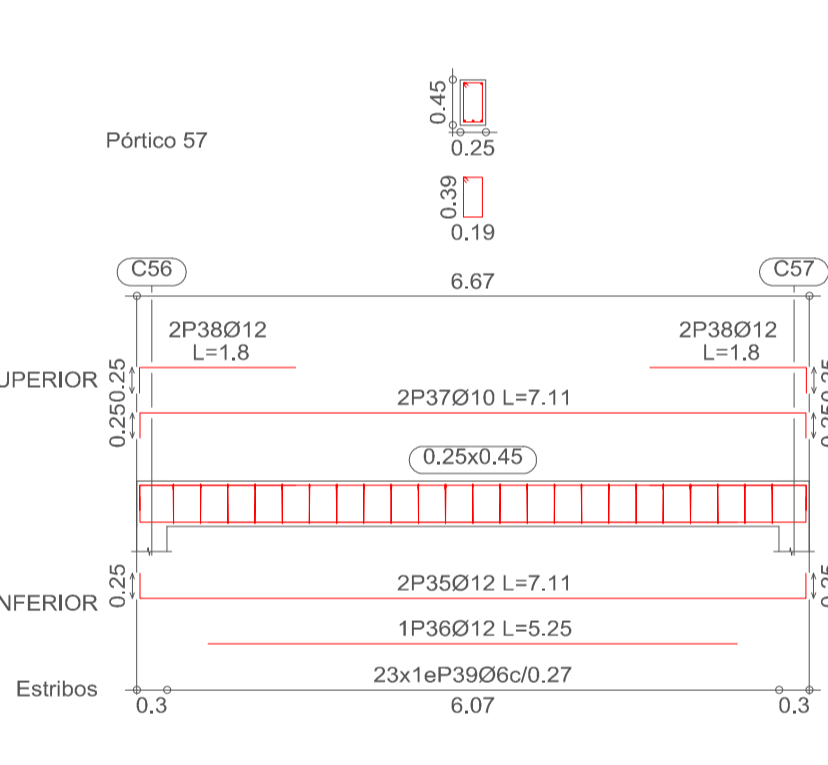
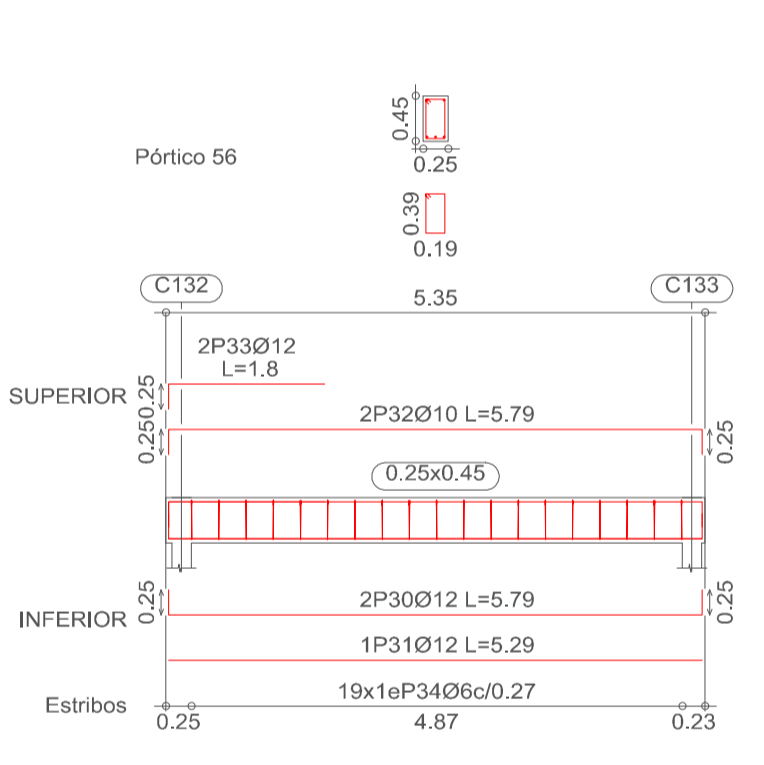
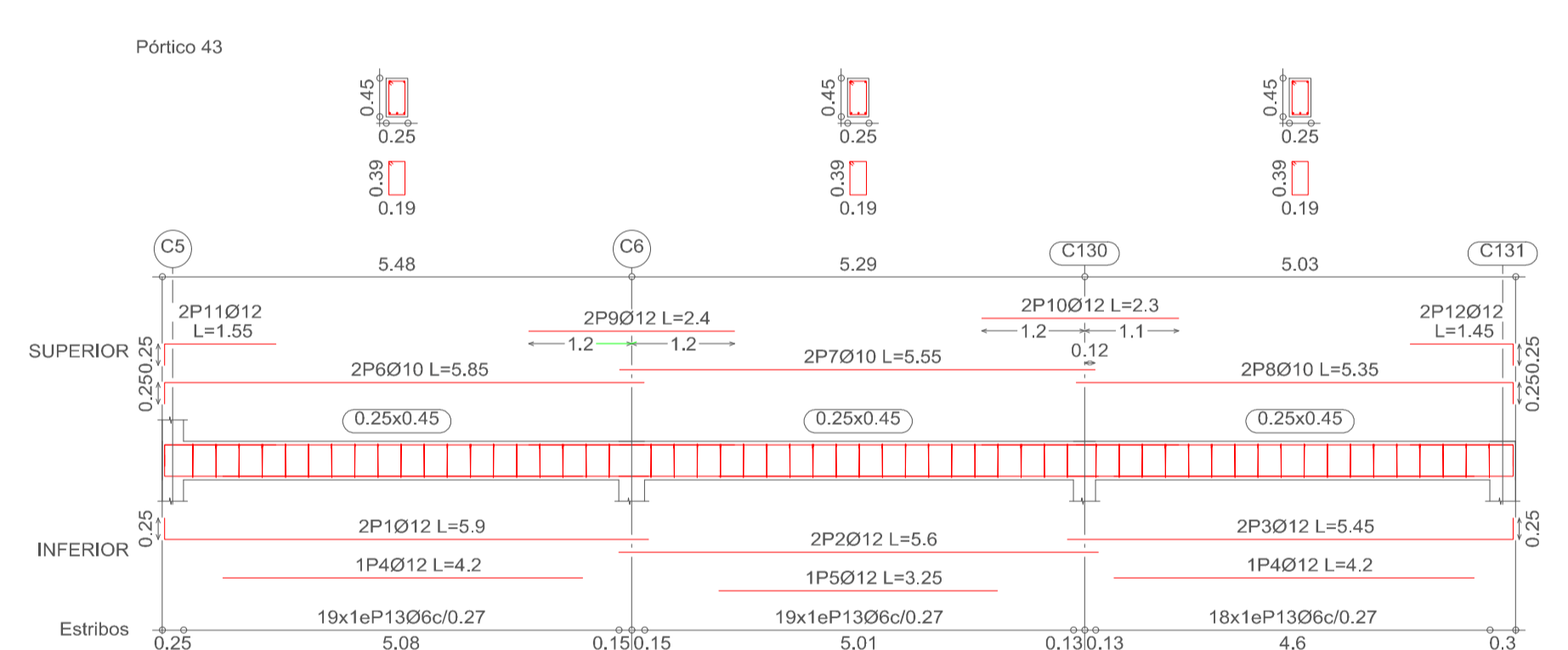
UNIVERSIDAD AUTÓNOMA "JUAN MISAEL SARACHO" FACULTAD DE CIENCIAS Y TECNOLOGÍA		
MATERIA: CIV - 502 PROYECTO ING. CIVIL II (M. ESTRUCTURAS)		
PROYECTO: DISEÑO ESTRUCTURAL CONSTRUCCIÓN CENTRO INTEGRAL SOCIAL Y CULTURAL ENTRE RÍOS		
DESCRIPCIÓN: DESPLIEGUE DE VIGAS NIVEL LOSA (CONTINUACIÓN)	UNIVERSITARIO: ANDRES FERNANDEZ FIGUEROA	LAMINA: 12
FECHA: MAYO 2023	ESCALA: INDICADA	



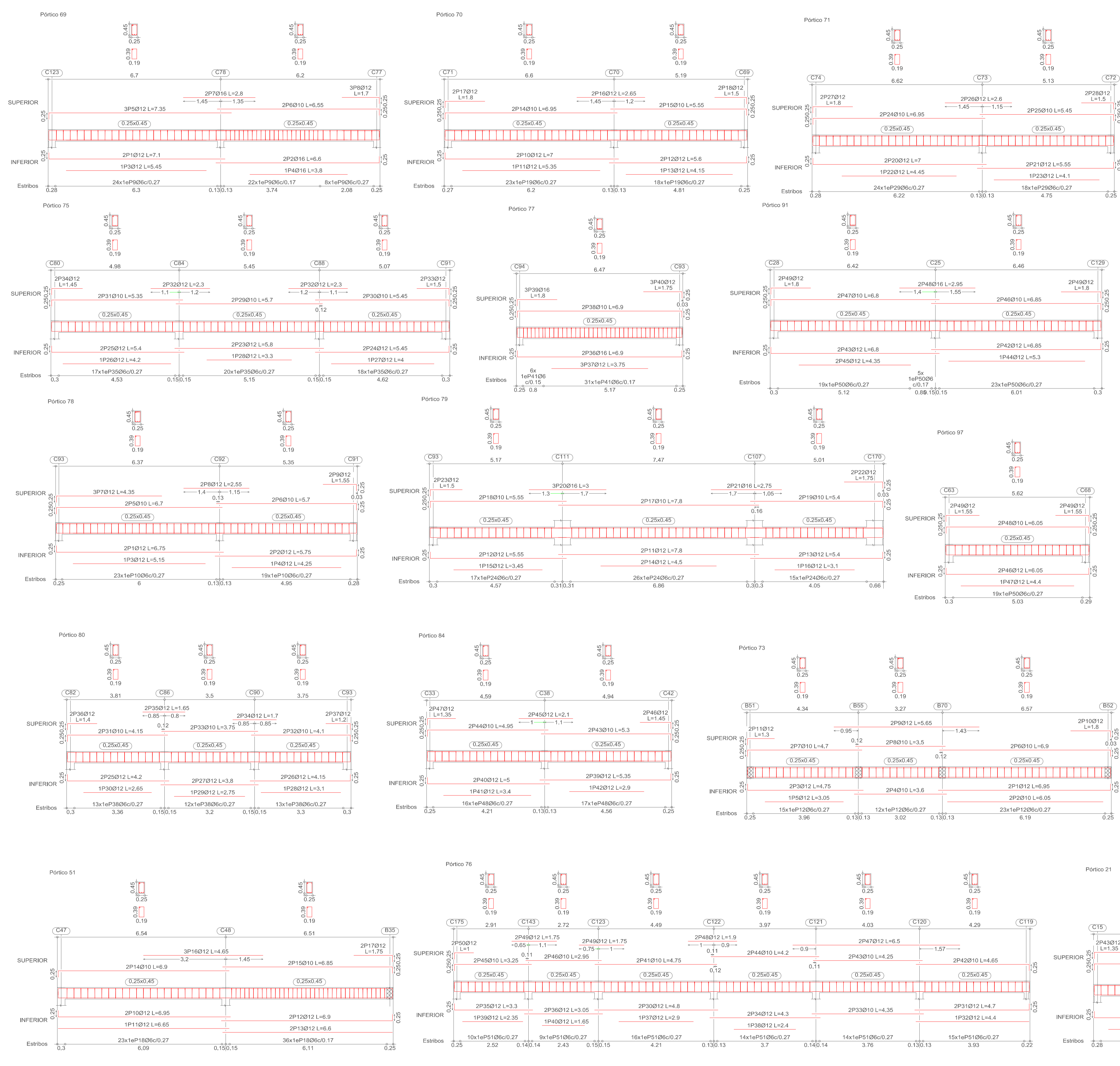
Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 43	1	Ø12	2	590	1180	10.5	
	2	Ø12	2	560	1120	9.9	
	3	Ø12	2	545	1090	9.7	
	4	Ø12	2	420	840	7.5	
	5	Ø6	25	325	8125	29.9	
	6	Ø10	2	585	1170	7.2	
	7	Ø10	2	555	1110	6.8	
	8	Ø10	2	535	1070	6.6	
	9	Ø12	2	240	480	4.3	
	10	Ø12	2	230	460	4.1	
	11	Ø12	2	155	310	2.8	
	12	Ø12	2	145	290	2.6	
	13	Ø6	56	128	7168	15.9	
Total+10%:						99.9	
Pórtico 44	14	Ø16	4	845	3380	53.3	
	15	Ø16	1	510	510	8.0	
	16	Ø16	1	505	505	8.0	
	17	Ø10	2	460	920	6.7	
	18	Ø10	2	845	1690	10.4	
	19	Ø10	2	840	1680	10.4	
	20	Ø10	2	455	910	5.6	
	21	Ø12	2	780	1560	13.9	
	22	Ø12	4	250	1000	9.9	
	23	Ø12	4	215	860	7.6	
	24	Ø6	79	128	10112	22.4	
	Total+10%:						169.6
	Pórtico 40	25	Ø12	2	777	1554	13.8
		26	Ø12	1	580	580	5.1
27		Ø10	2	777	1554	9.6	
28		Ø12	4	196	784	6.9	
29		Ø6	25	128	3200	7.1	
Total+10%:						46.8	
Pórtico 56		30	Ø12	2	579	1158	10.3
		31	Ø12	1	529	529	4.7
		32	Ø10	2	579	1158	7.1
	33	Ø12	2	160	320	3.2	
	34	Ø6	19	128	2432	5.4	
	Total+10%:						33.8
	Pórtico 57	35	Ø12	2	711	1422	12.6
36		Ø12	1	525	525	4.7	
37		Ø10	2	711	1422	8.8	
38		Ø12	4	180	720	6.4	
39		Ø6	23	128	2944	6.5	
Total+10%:						42.9	
Pórtico 58	40	Ø12	2	707	1414	12.6	
	41	Ø12	1	520	520	4.6	
	42	Ø10	2	707	1414	8.7	
	43	Ø12	2	355	710	6.3	
	44	Ø12	2	180	360	3.2	
	45	Ø6	23	128	2944	6.5	
Total+10%:						46.1	
Ø6: 70.3							
Ø10: 95.5							
Ø12: 197.1							
Ø16: 75.2							
Total: 439.1							

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)		
Pórtico 30	1	Ø12	2	779	1558	13.8		
	2	Ø10	2	580	580	5.1		
	3	Ø12	2	779	1558	9.6		
	4	Ø12	4	195	780	6.9		
	5	Ø6	25	128	3200	7.1		
	Total+10%:						46.8	
	Pórtico 31	6	Ø12	2	777	1554	13.8	
		7	Ø12	1	485	485	4.3	
		8	Ø12	2	777	1554	9.6	
		9	Ø12	4	195	780	6.9	
		10	Ø6	25	128	3200	7.1	
		Total+10%:						45.9
		Pórtico 32	11	Ø12	2	679	1358	12.1
12			Ø12	2	525	1050	9.3	
13			Ø10	2	679	1358	8.4	
14			Ø12	2	175	350	3.1	
15	Ø12		2	170	340	3.0		
16	Ø6		22	128	2816	6.2		
Total+10%:						46.3		
Pórtico 33	17	Ø12	2	723	1446	12.8		
	18	Ø12	1	535	535	4.7		
	19	Ø10	2	723	1446	8.9		
	20	Ø12	4	180	720	6.4		
	21	Ø6	23	128	2944	6.5		
	Total+10%:						43.2	
Pórtico 34	22	Ø12	2	665	1330	11.8		
	23	Ø16	2	670	1340	21.1		
	24	Ø12	2	560	1120	9.9		
	25	Ø12	1	435	435	3.9		
	26	Ø12	2	415	830	3.7		
	27	Ø12	3	400	1200	10.7		
	28	Ø10	2	650	1300	8.0		
	29	Ø10	2	665	1330	8.2		
	30	Ø10	2	555	1110	6.8		
	31	Ø12	3	500	1500	13.3		
Total+10%:						149.3		
Pórtico 35	36	Ø12	2	724	1448	12.9		
	37	Ø12	1	540	540	4.8		
	38	Ø10	2	724	1448	8.9		
	39	Ø12	2	185	370	3.3		
	40	Ø12	2	180	360	3.2		
	41	Ø6	24	128	3456	7.7		
Total+10%:						43.9		
Pórtico 42	42	Ø12	2	665	1330	15.0		
	43	Ø10	2	665	1330	8.2		
	44	Ø12	2	845	1690	10.4		
	45	Ø12	4	210	840	7.5		
	46	Ø6	28	128	3584	8.0		
	Total+10%:						54.0	
Ø6: 75.0								
Ø10: 95.6								
Ø12: 236.6								
Ø16: 23.2								
Total: 429.4								

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 16	1	Ø16	2	436	872	13.8	
	2	Ø10	2	265	530	3.3	
	3	Ø12	2	436	872	5.4	
	4	Ø12	4	120	480	4.3	
	5	Ø6	13	128	1664	3.7	
Total+10%:						33.6	
Pórtico 17	6	Ø12	2	400	800	8.7	
	7	Ø12	2	470	940	8.3	
	8	Ø12	1	340	340	3.0	
	9	Ø12	1	315	315	2.8	
	10	Ø10	2	465	930	6.0	
	11	Ø10	2	465	930	5.7	
Pórtico 18	12	Ø12	2	230	460	2.4	
	13	Ø12	2	135	270	2.1	
	14	Ø12	2	130	260	2.3	
	15	Ø6	40	128	5120	11.4	
	Total+10%:						60.2
	16	Ø12	2	428	856	7.6	
Pórtico 19	17	Ø10	2	428	856	5.3	
	18	Ø10	2	428	856	5.3	
	19	Ø12	4	115	460	4.1	
	20	Ø6	13	128	1664	3.7	
	Total+10%:						25.6
	21	Ø12	2	435	870	7.7	
Pórtico 20	22	Ø12	2	405	810	3.6	
	23	Ø12	2	415	830	7.4	
	24	Ø12	1	385	385	3.4	
	25	Ø10	2	430	860	5.3	
	26	Ø10	2	410	820	5.1	
	27	Ø12	2	220	440	3.9	
Pórtico 21	28	Ø12	2	115	230	2.0	
	29	Ø6	27	128	3456	7.7	
	Total+10%:						50.7
	30	Ø16	2	453	906	14.3	
	31	Ø16	1	270	270	4.3	
	32	Ø10	2	453	906	5.6	
Pórtico 22	33	Ø12	4	120	480	4.3	
	34	Ø6	14	128	1792	4.0	
	Total+10%:						35.8
	35	Ø12	2	540	1080	9.6	
	36	Ø10	2	510	1020	6.3	
	37	Ø12	2	515	1030	9.1	
Pórtico 23	38	Ø12	1	420	420	3.7	
	39	Ø10	2	530	1060	6.5	
	40	Ø10	2	510	1020	6.3	
	41	Ø12	4	215	860	5.7	
	42	Ø12	2	200	400	3.6	
	43	Ø6	37	128	4736	10.5	
Total+10%:						67.4	
Ø6: 45.1							
Ø10: 96.8							
Ø12: 125.7							
Ø16: 35.7							
Total: 273.3							



Elemento	Pos.	Diám.
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Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 78	1	Ø12	2	675	1350	12.0
	2	Ø12	2	575	1150	10.2
	3	Ø12	1	515	515	4.6
	4	Ø12	1	425	425	3.8
	5	Ø12	1	540	540	4.9
	6	Ø10	2	570	1140	7.0
	7	Ø12	3	435	1305	11.6
	8	Ø12	1	310	310	2.8
	9	Ø12	2	155	310	2.8
	10	Ø6	42	128	5376	11.9
Total+10%:						84.4

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 69	1	Ø12	2	710	1420	12.6
	2	Ø16	2	660	1320	20.8
	3	Ø12	1	545	545	4.8
	4	Ø16	1	380	380	6.0
	5	Ø12	3	735	2205	19.6
	6	Ø10	2	695	1390	8.1
	7	Ø16	2	280	560	8.8
	8	Ø12	3	170	510	4.5
	9	Ø6	54	128	6912	15.3
	Total+10%:					

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 65	1	Ø12	2	695	1390	12.3
	2	Ø12	1	665	665	5.9
	3	Ø16	2	660	1320	20.8
	4	Ø16	1	570	570	18.0
	5	Ø10	2	690	1380	8.5
	6	Ø10	2	655	1310	8.1
	7	Ø12	3	175	525	4.7
	8	Ø12	2	170	340	3.0
	9	Ø6	53	128	6784	15.1
	Total+10%:					

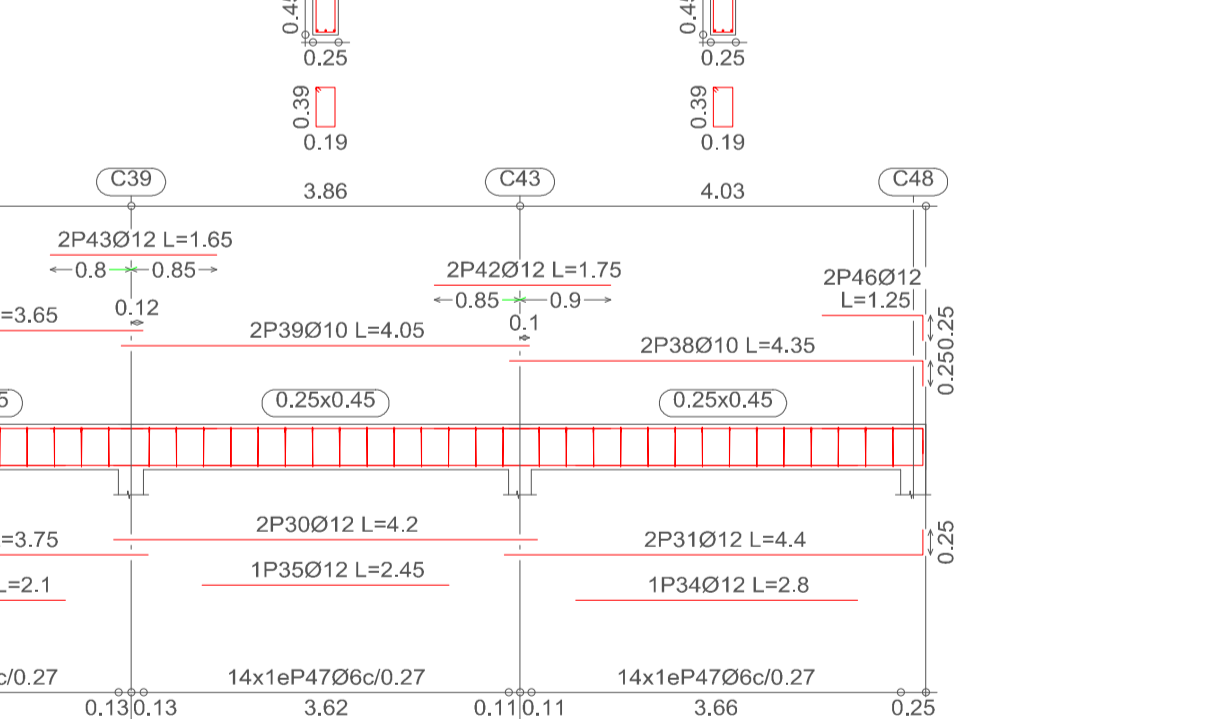
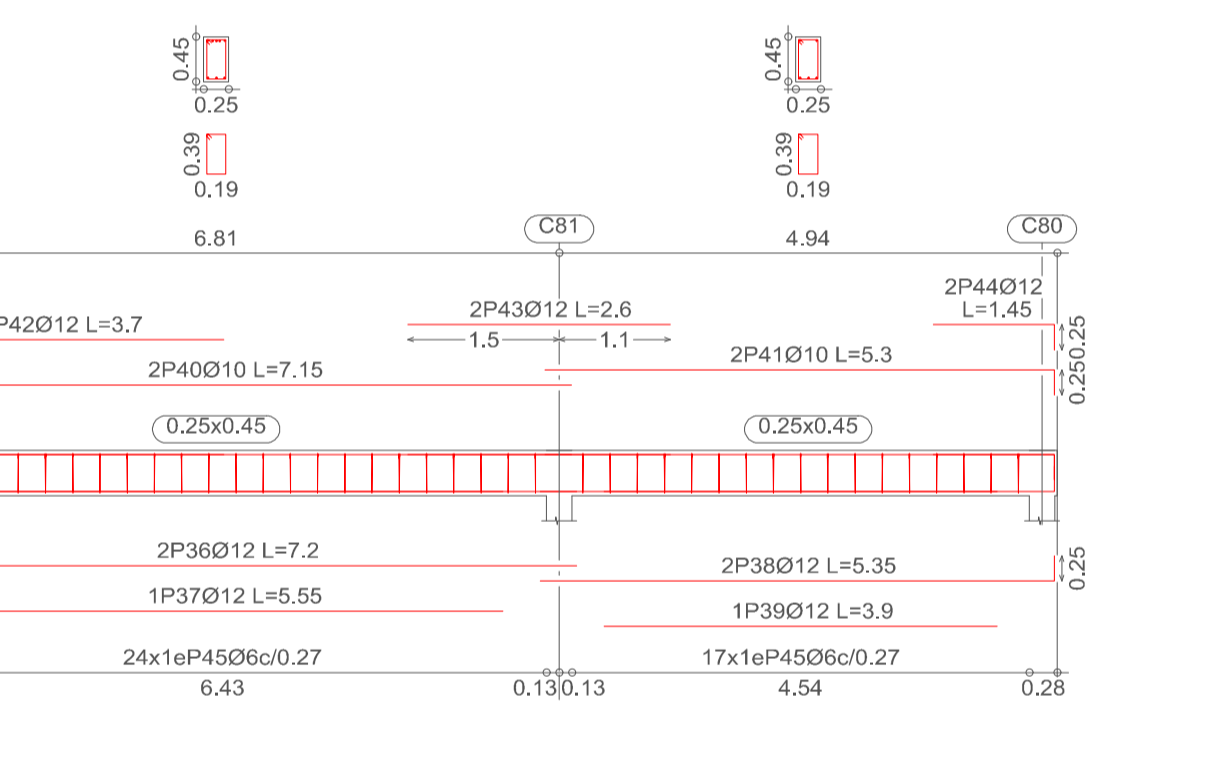
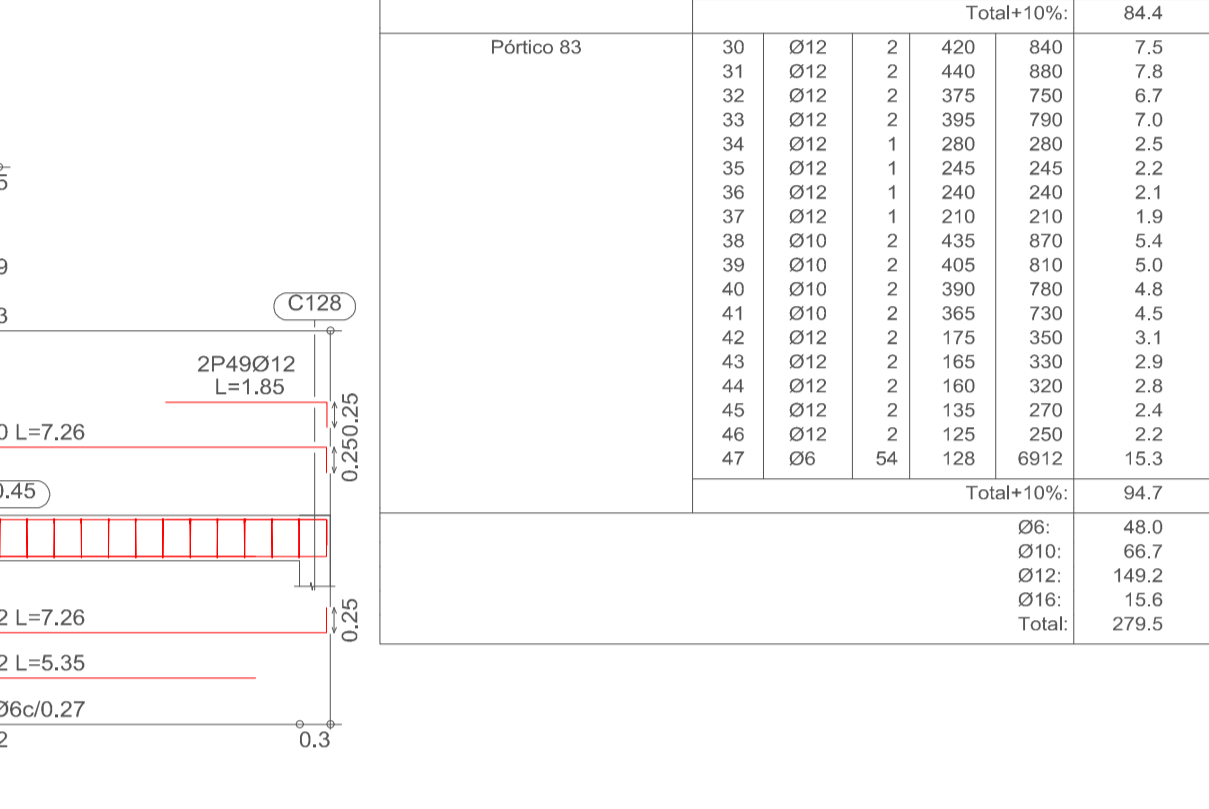
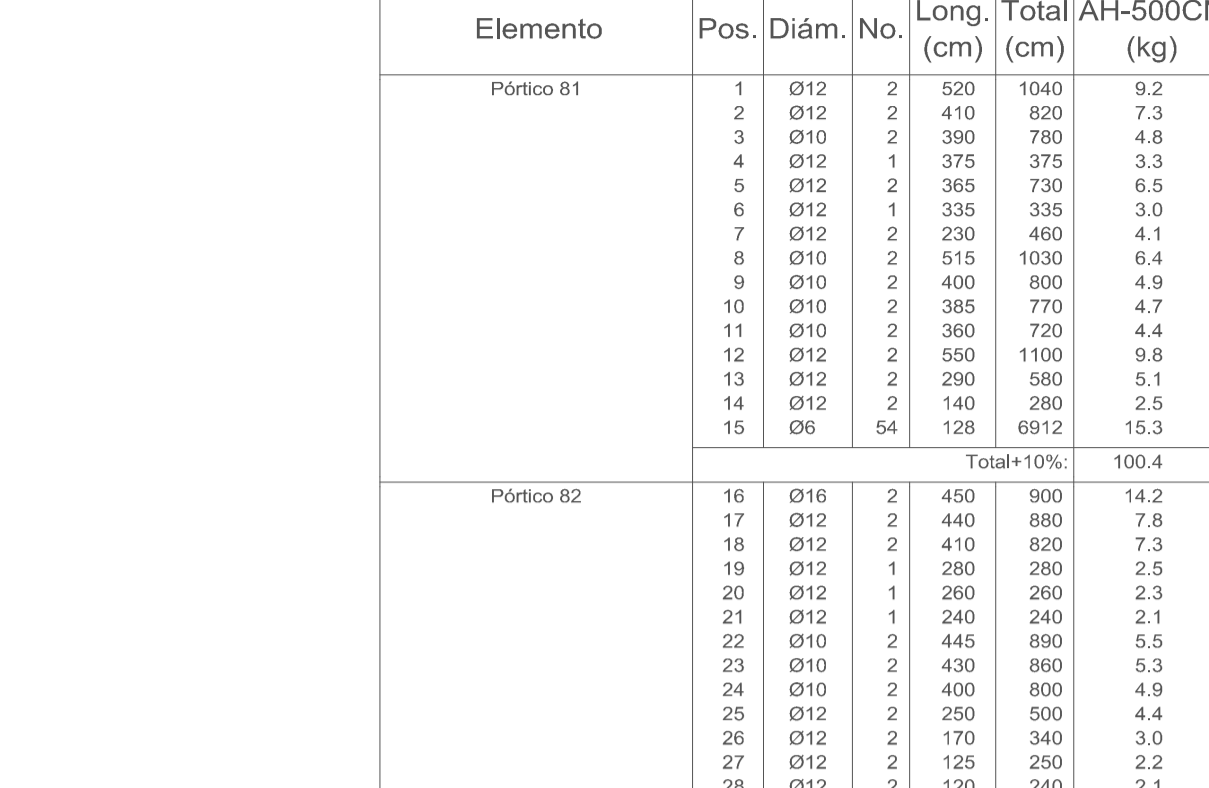
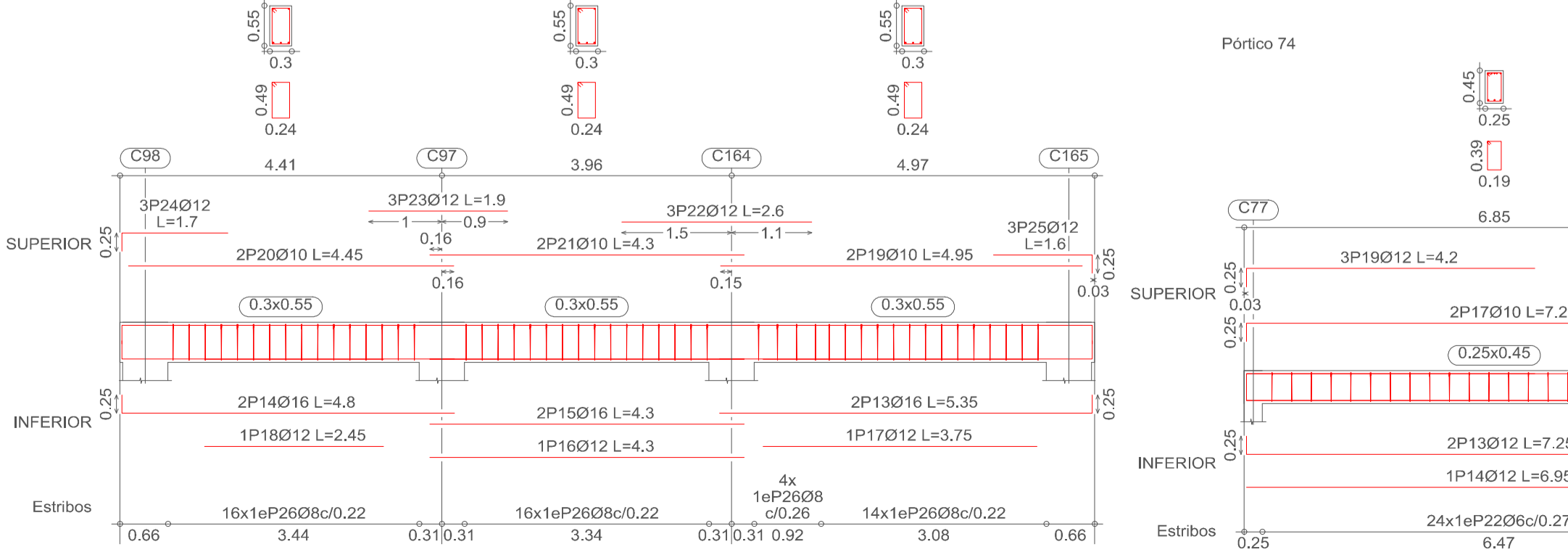
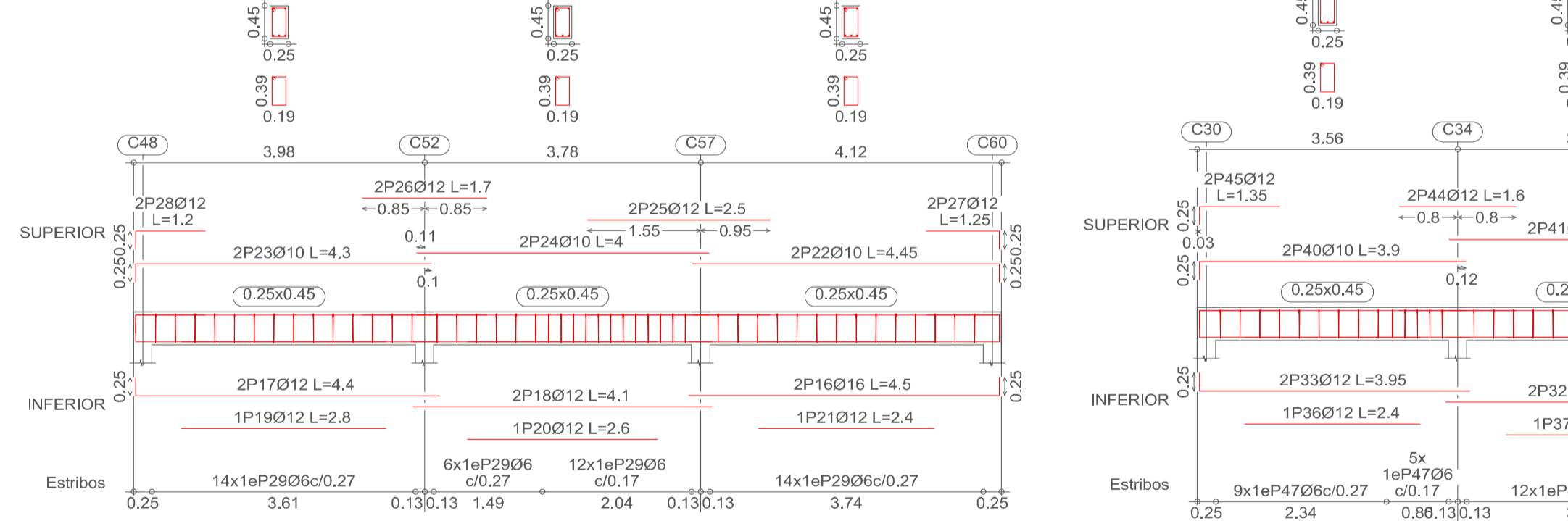
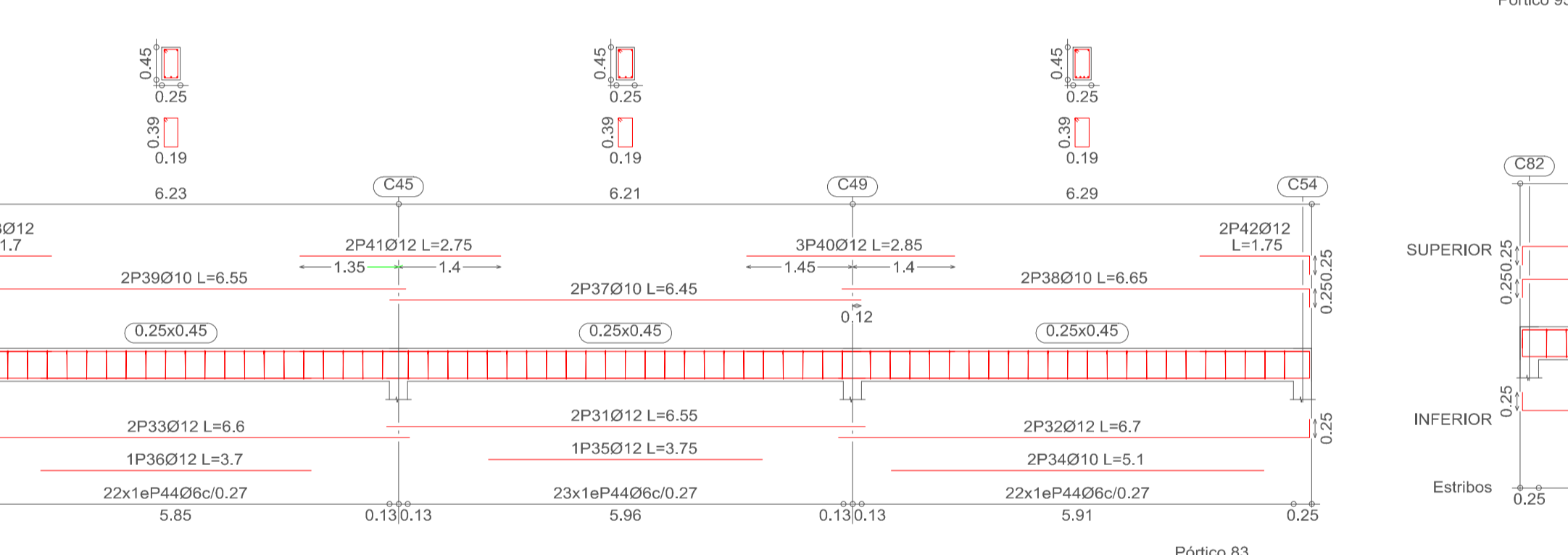
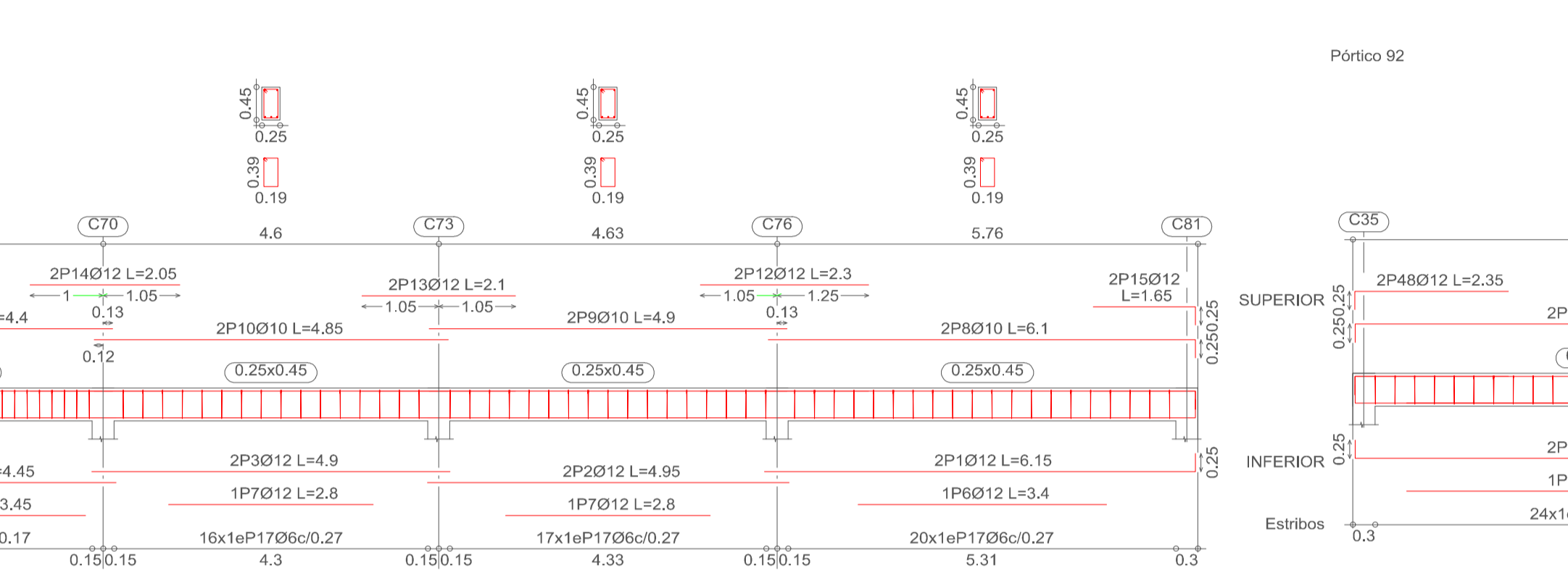
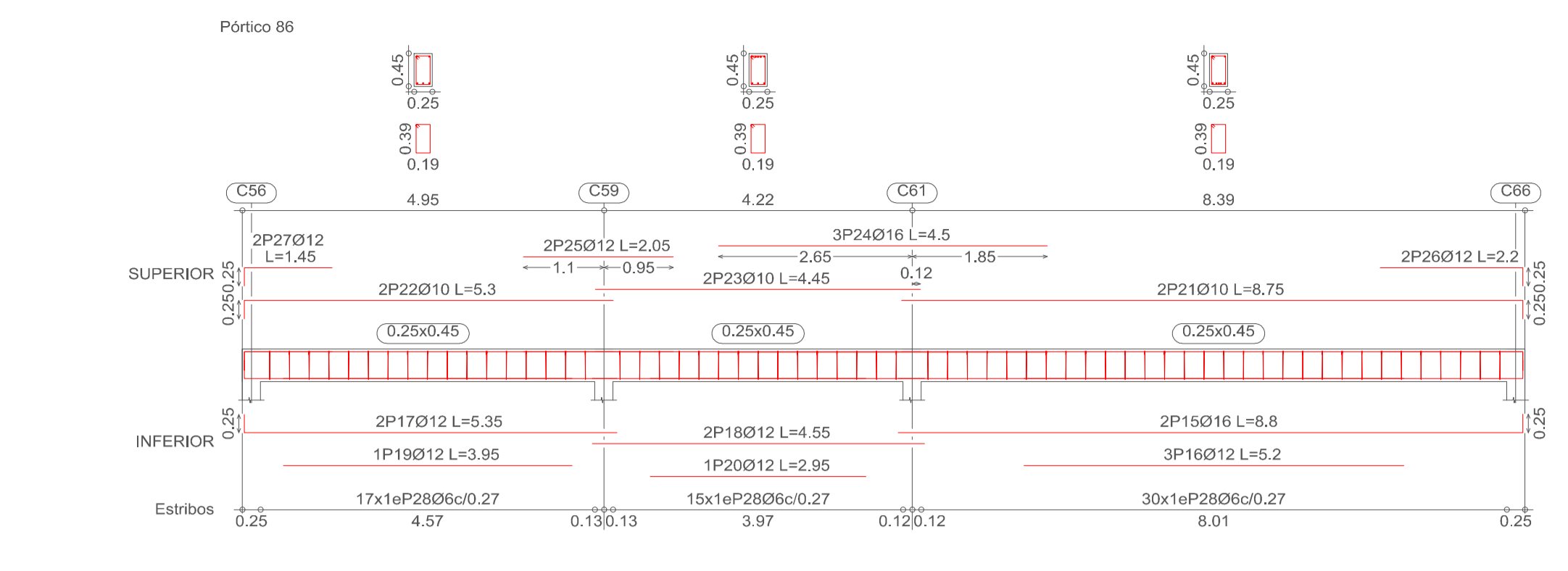
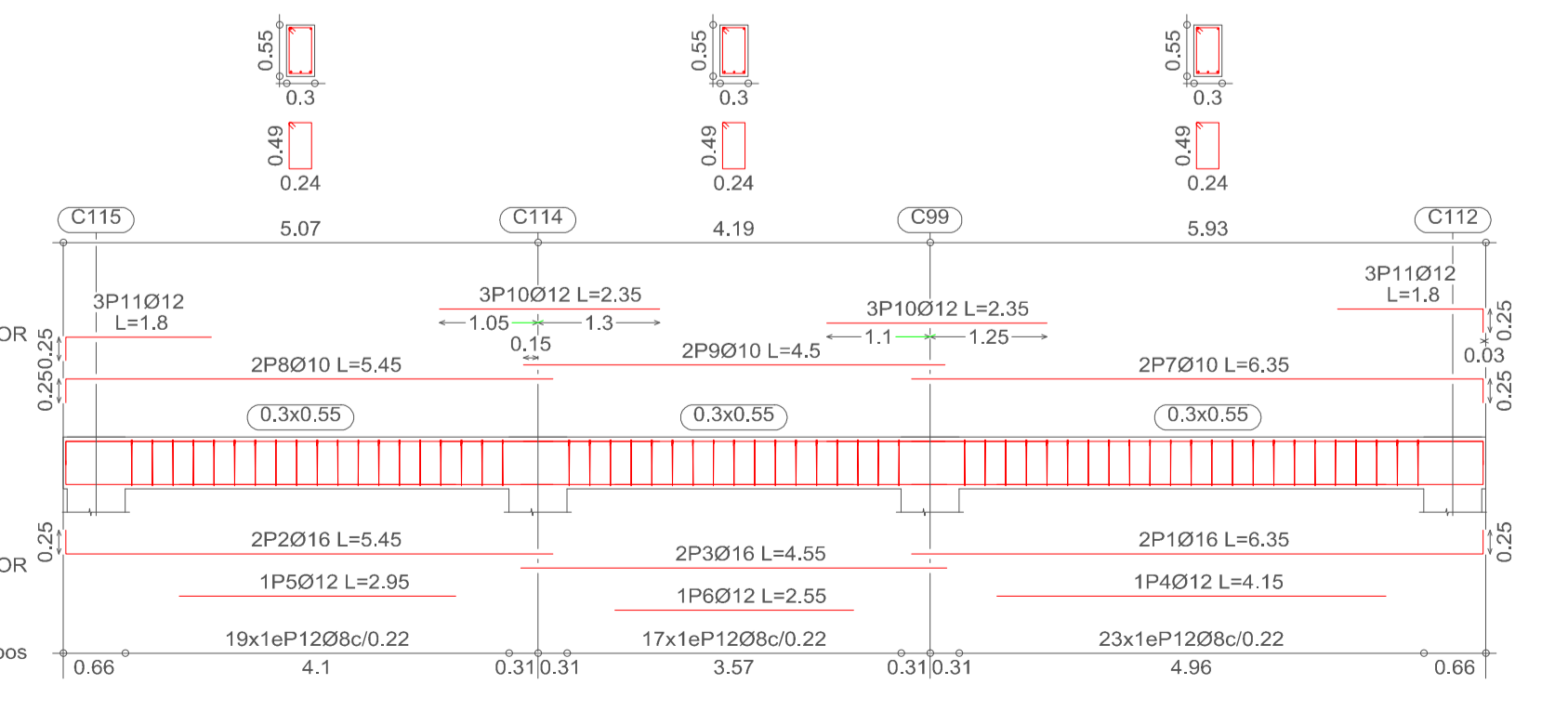
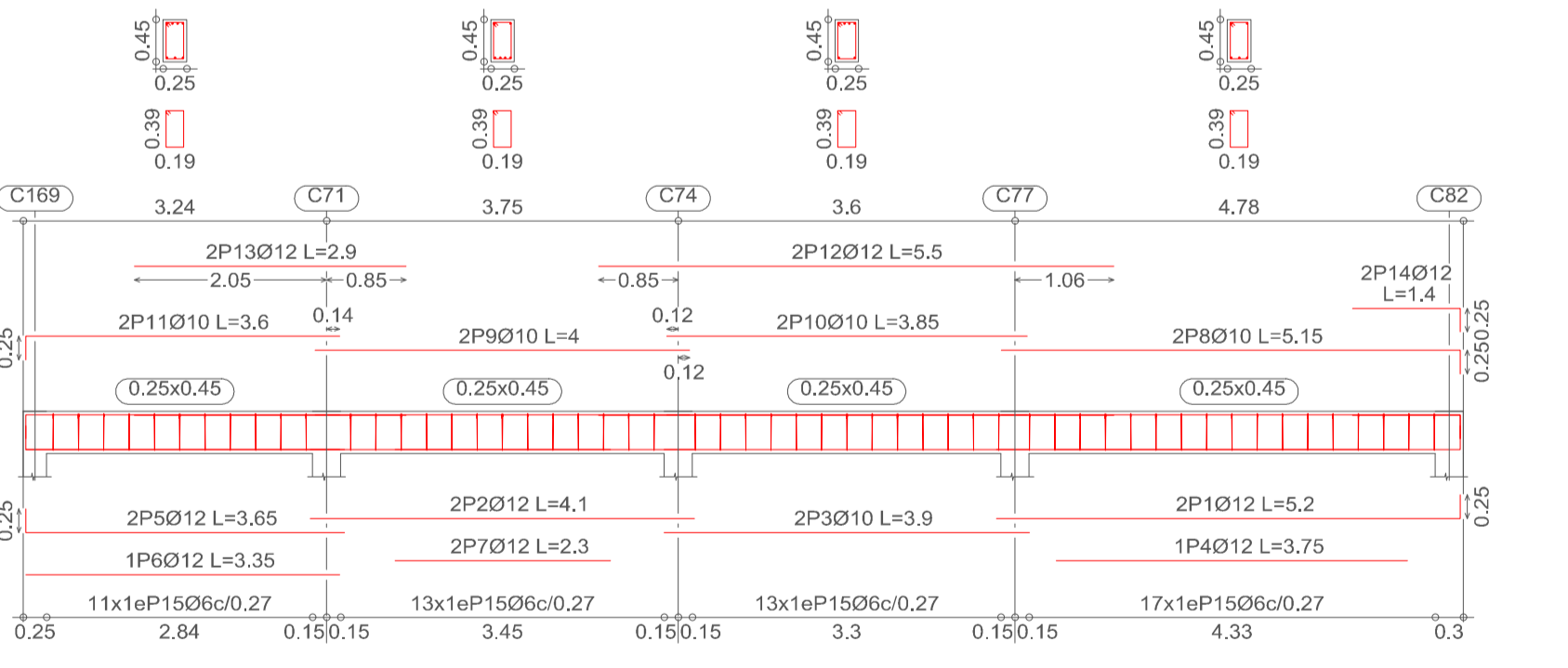
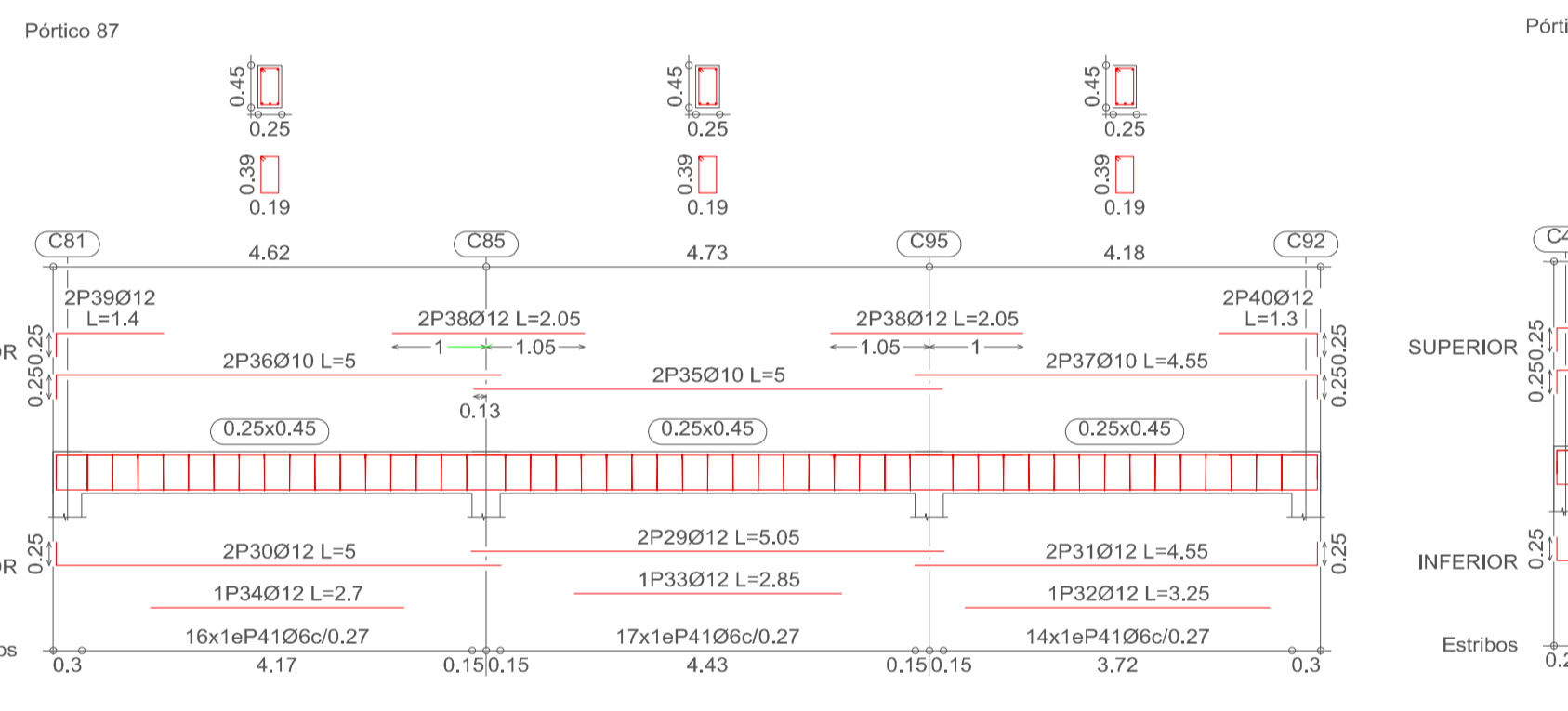
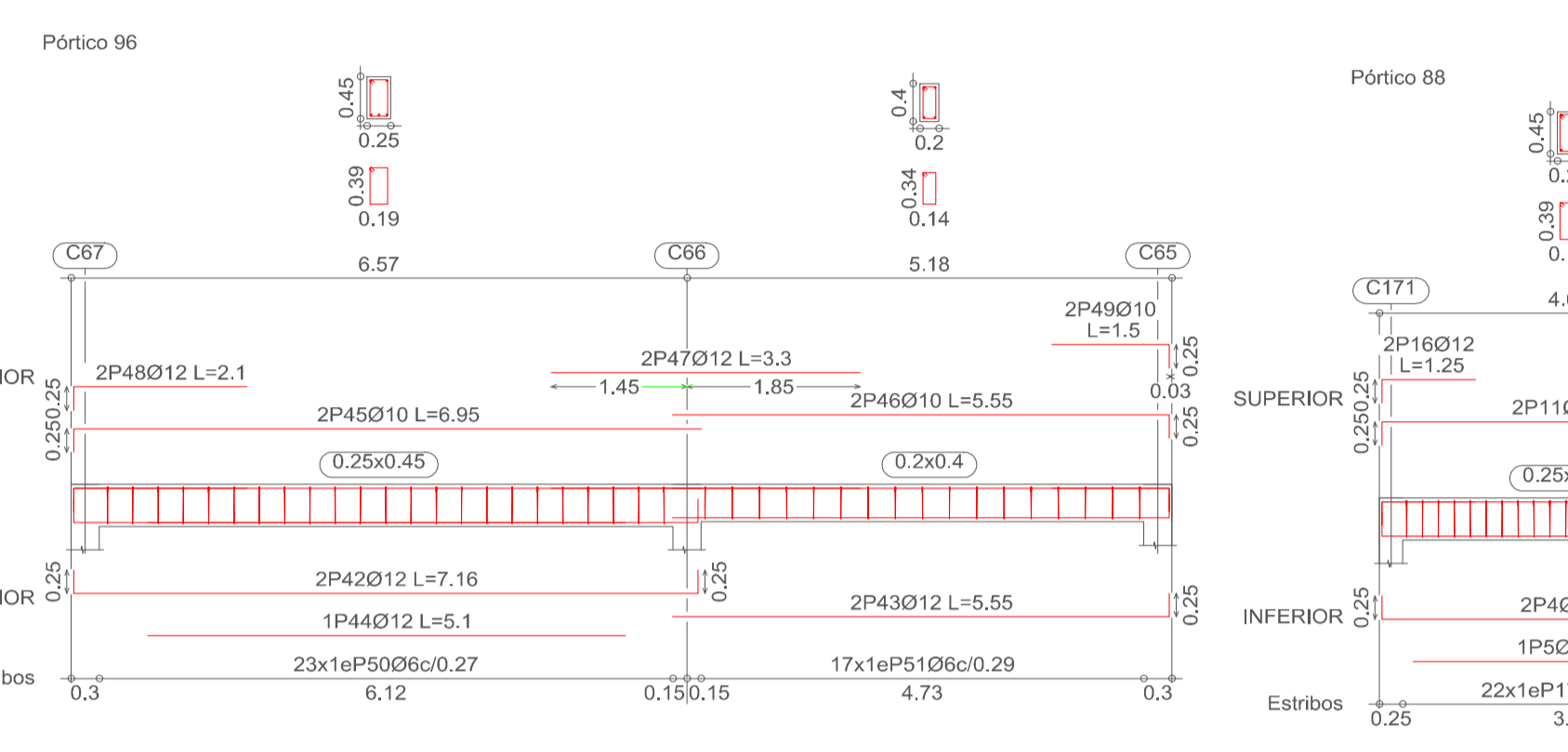
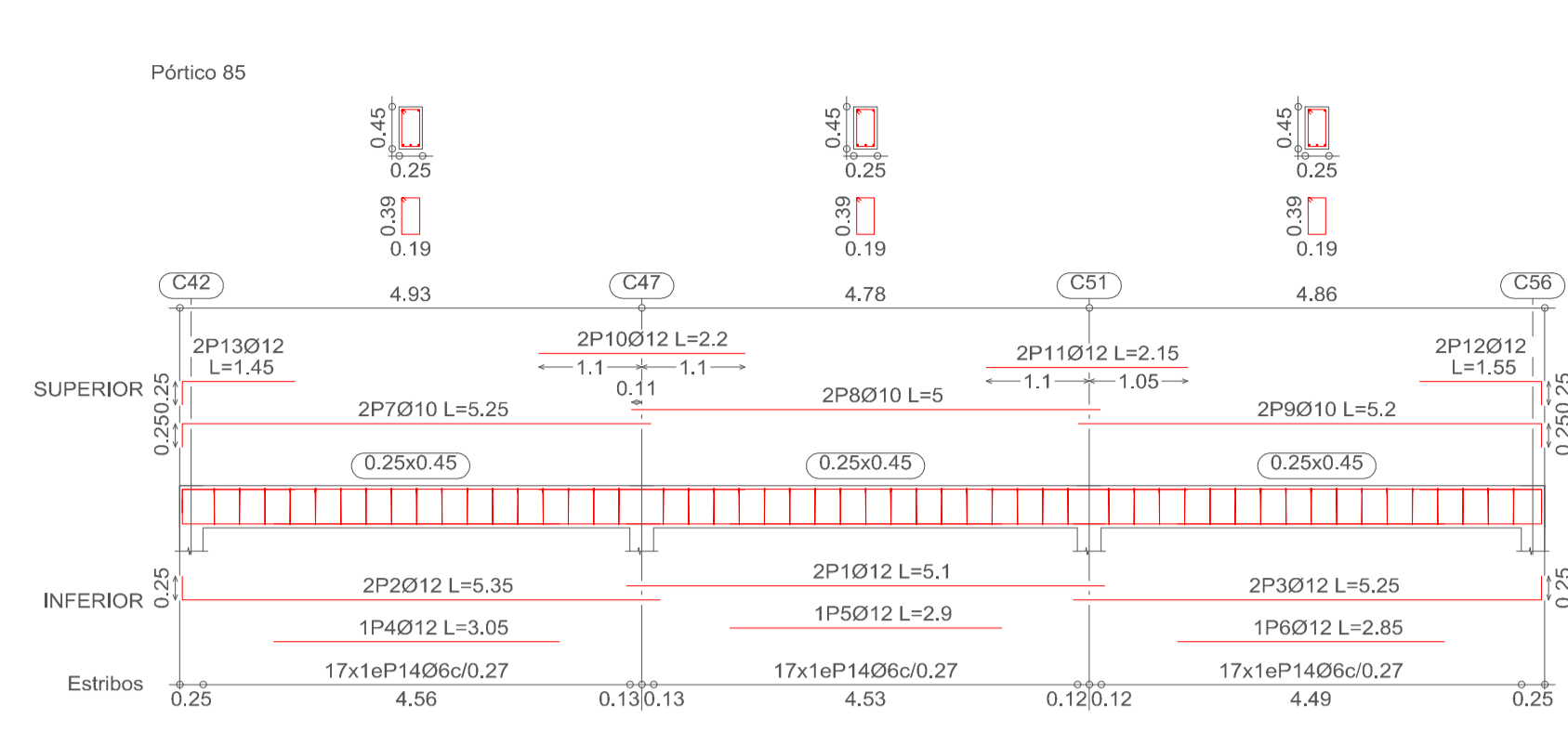
Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 73	1	Ø12	2	695	1390	12.3
	2	Ø10	2	605	1210	7.5
	3	Ø12	2	475	950	8.4
	4	Ø10	2	425	850	4.4
	5	Ø12	1	305	305	2.7
	6	Ø10	2	690	1380	8.5
	7	Ø10	2	470	940	5.8
	8	Ø10	2	425	850	4.3
	9	Ø12	2	565	1130	10.0
	10	Ø12	2	180	360	3.2
Total+10%:						92.0

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 72	30	Ø12	2	645	1290	11.5
	31	Ø12	1	545	545	4.8
	32	Ø12	1	455	455	7.9
	33	Ø12	1	340	340	3.0
	34	Ø10	2	335	670	4.1
	35	Ø10	2	640	1280	7.9
	36	Ø10	2	440	880	5.4
	37	Ø10	2	320	640	3.9
	38	Ø12	2	525	1050	9.3
	40	Ø12	2	125	250	2.2
Total+10%:						84.0

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 74	13	Ø12	2	725	1450	12.9
	14	Ø12	1	695	695	6.2
	15	Ø12	2	525	1050	9.3
	16	Ø12	1	385	385	3.4
	17	Ø10	2	720	1440	8.9
	18	Ø10	2	520	1040	6.4
	19	Ø12	3	420	1260	11.2
	20	Ø12	2	255	510	4.5
	21	Ø12	2	145	290	2.6
	22	Ø6	41	128	5248	11.6
Total+10%:						84.7

ESCALA: 1:75

UNIVERSIDAD AUTÓNOMA "JUAN MISAEL SARACHO" FACULTAD DE CIENCIAS Y TECNOLOGÍA		
MATERIA: CIV - 502 PROYECTO ING. CIVIL II (M. ESTRUCTURAS)		
PROYECTO: DISEÑO ESTRUCTURAL CONSTRUCCIÓN CENTRO INTEGRAL SOCIAL Y CULTURAL ENTRE RÍOS		LAMINA: 14
DESCRIPCIÓN: DESPLIEGUE DE VIGAS NIVEL LOSA (CONTINUACION)		
FECHA: MAYO 2023	UNIVERSITARIO: ANDRÉS FERNÁNDEZ FIGUEROA	ESCALA: INDICADA



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 81	1	Ø12	2	520	1040	9.2	
	2	Ø12	2	410	820	7.3	
	3	Ø16	2	380	760	4.8	
	4	Ø12	1	375	375	3.3	
	5	Ø12	2	365	730	6.5	
	6	Ø12	1	335	335	3.0	
	7	Ø12	2	230	460	4.1	
	8	Ø10	2	515	1030	6.4	
	9	Ø10	2	400	800	4.9	
	10	Ø10	2	385	770	4.7	
	11	Ø10	2	360	720	4.4	
	12	Ø12	2	550	1100	9.8	
	13	Ø12	2	280	560	5.1	
	14	Ø12	2	140	280	2.5	
	15	Ø6	54	128	6912	15.3	
Total+10%:						100.4	
Pórtico 82	16	Ø16	2	450	900	14.2	
	17	Ø12	2	440	880	7.8	
	18	Ø12	2	410	820	7.3	
	19	Ø12	1	280	280	2.5	
	20	Ø12	1	260	260	2.3	
	21	Ø12	1	240	240	2.1	
	22	Ø10	2	445	890	5.5	
	23	Ø10	2	430	860	5.3	
	24	Ø10	2	400	800	4.9	
	25	Ø10	2	260	520	4.4	
	26	Ø12	2	170	340	3.0	
	27	Ø12	2	125	250	2.2	
	28	Ø12	2	120	240	2.1	
	29	Ø6	48	128	5888	13.1	
	Total+10%:						84.4
	Pórtico 83	30	Ø12	2	420	840	7.5
31		Ø12	2	440	880	7.8	
32		Ø12	2	375	750	6.7	
33		Ø12	2	385	770	7.0	
34		Ø12	1	280	280	2.5	
35		Ø12	1	245	245	2.2	
36		Ø12	1	240	240	2.1	
37		Ø12	1	210	210	1.9	
38		Ø10	2	435	870	5.4	
39		Ø10	2	405	810	5.0	
40		Ø10	2	390	780	4.8	
41		Ø10	2	365	730	4.5	
42		Ø12	2	175	350	3.1	
43		Ø12	2	165	330	2.9	
44		Ø12	2	160	320	2.8	
45		Ø12	2	135	270	2.4	
46	Ø12	2	125	250	2.2		
47	Ø6	54	128	6912	15.3		
Total+10%:						94.7	
Ø6: 48.0							
Ø10: 66.7							
Ø12: 149.2							
Ø16: 15.6							
Total: 279.5							

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)	
Pórtico 16	1	Ø16	2	1200	2400	37.9	
	2	Ø16	4	125	500	7.9	
	3	Ø16	2	855	1710	29.2	
	4	Ø10	4	660	2640	16.3	
	5	Ø16	6	315	1890	29.8	
	6	Ø16	2	295	590	9.3	
	7	Ø12	2	295	590	5.2	
	8	Ø8	51	162	8262	32.6	
	Total+10%:						185.0
	Pórtico 17	9	Ø16	2	1200	2400	37.9
		10	Ø16	4	125	500	7.9
		11	Ø12	2	855	1710	29.2
		12	Ø10	4	660	2640	16.3
		13	Ø16	5	315	1575	24.9
		14	Ø16	2	295	590	9.3
15		Ø8	51	162	8262	32.6	
Total+10%:						160.5	
Pórtico 18		16	Ø16	2	720	1440	22.7
		17	Ø12	2	660	1320	20.8
		18	Ø12	1	460	460	4.1
		19	Ø12	1	450	450	4.0
	20	Ø12	2	715	1430	12.7	
	21	Ø12	2	660	1320	11.7	
	22	Ø12	3	275	825	7.3	
	23	Ø12	3	200	600	5.3	
	24	Ø12	3	190	570	5.1	
	25	Ø8	51	162	8262	32.6	
	Total+10%:						138.9
Pórtico 20	26	Ø12	2	545	1090	9.7	
	27	Ø12	2	480	960	8.5	
	28	Ø12	1	450	450	4.0	
	29	Ø12	1	345	345	3.1	
	30	Ø10	2	545	1090	6.7	
	31	Ø10	2	475	950	5.9	
	32	Ø12	2	255	510	4.5	
	33	Ø12	2	150	300	2.7	
	34	Ø6	33	128	4224	9.4	
	Total+10%:						60.0
	Pórtico 21	35	Ø12	2	505	1010	9.0
36		Ø12	1	480	480	4.3	
37		Ø12	2	490	980	8.7	
38		Ø12	1	350	350	3.1	
39		Ø10	2	505	1010	6.2	
40		Ø10	2	485	970	6.0	
41		Ø12	2	270	540	4.8	
42		Ø12	2	170	340	4.0	
43		Ø12	2	135	270	2.4	
44		Ø6	32	128	4096	9.1	
Total+10%:						62.3	
Ø6: 20.4							
Ø8: 107.5							
Ø10: 63.1							
Ø12: 154.3							
Ø16: 261.4							
Total: 606.7							

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 22	1	Ø16	2	635	1270	20.0
	2	Ø16	2	545	1090	17.2
	3	Ø16	2	455	910	14.4
	4	Ø12	1	415	415	3.7
	5	Ø12	1	295	295	2.6
	6	Ø12	1	255	255	2.3
	7	Ø10	2	635	1270	7.8
	8	Ø10	2	545	1090	6.7
	9	Ø10	2	450	900	5.5
	10	Ø12	6	235	1410	12.5
	11	Ø12	6	180	1080	9.6
	12	Ø8	59	162	9558	37.7
Total+10%:						164.0
Ø6: 76.7						
Ø10: 40.8						
Ø12: 66.8						
Ø16: 107.1						
Total: 291.2						

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 23	13	Ø16	2	535	1070	16.9
	14	Ø16	2	480	960	15.2
	15	Ø16	2	430	860	13.6
	16	Ø12	1	43		