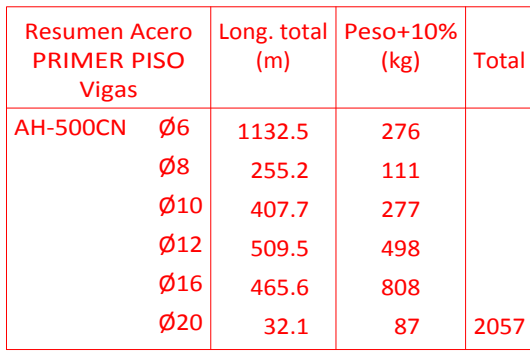
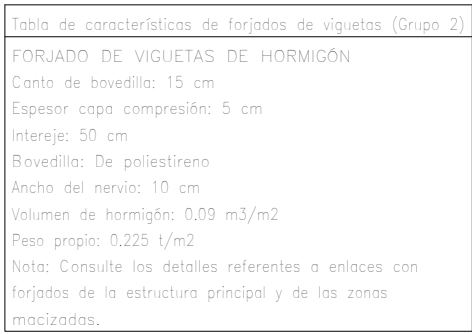
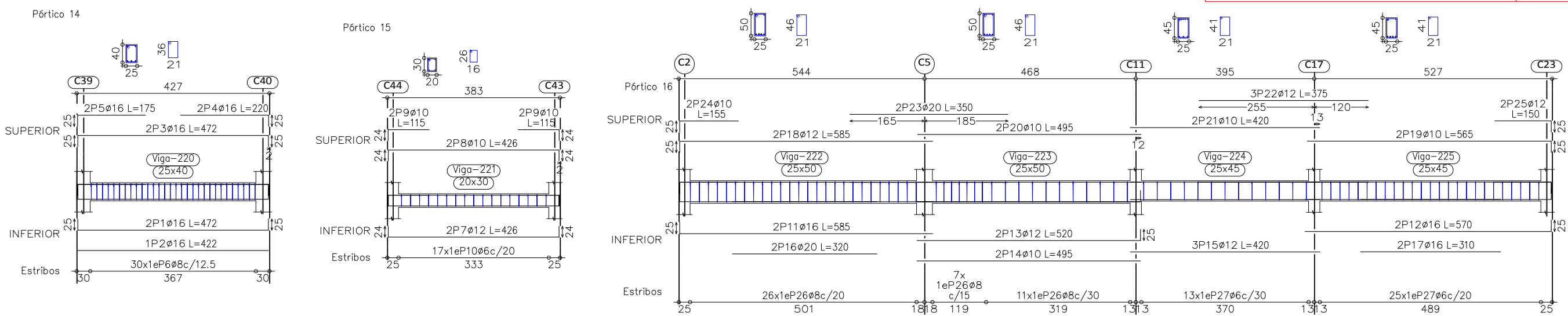
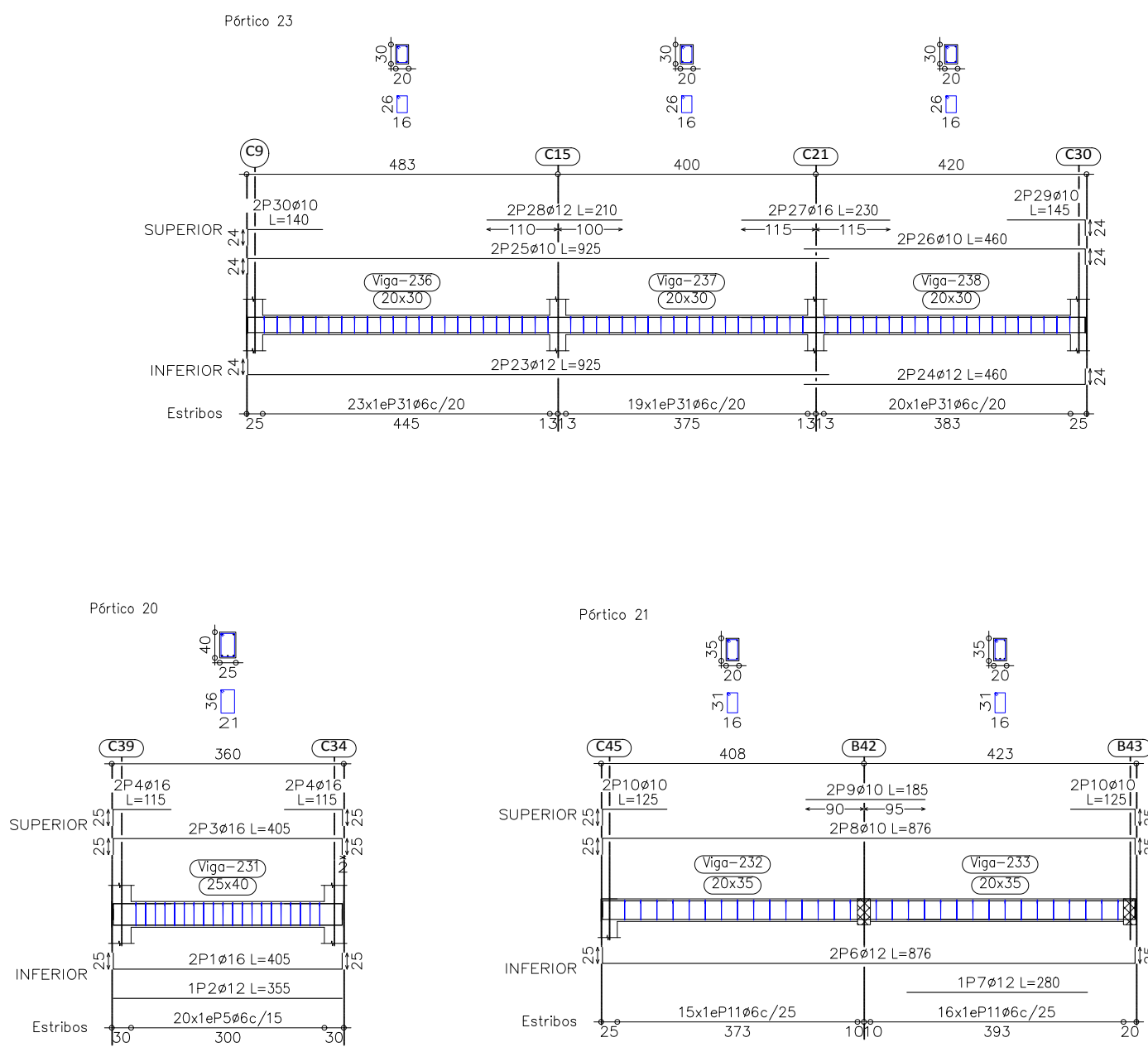


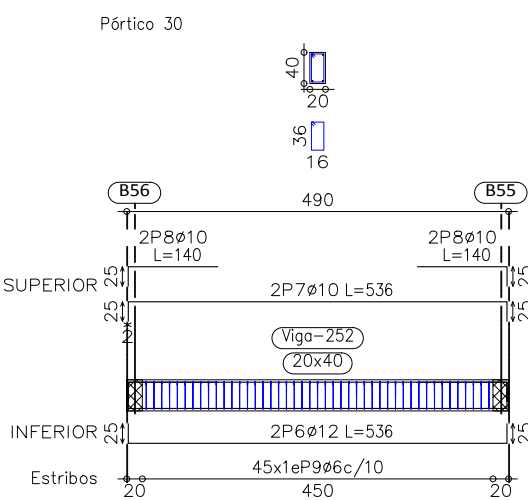
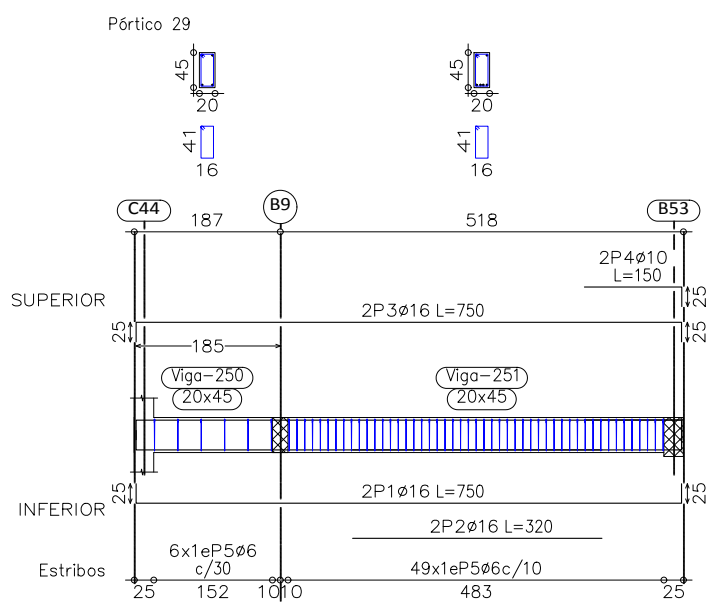
Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500G (kg)
Pórtico 14	1	Ø16	2	472	944	14.9
	2	Ø16	1	422	844	13.1
	3	Ø16	2	472	944	14.9
	4	Ø16	2	220	440	6.9
	5	Ø16	2	175	350	5.5
	6	Ø8	30	130	3900	15.4
					Totals:	70.7
Pórtico 15	7	Ø12	2	426	852	3.6
	8	Ø10	2	426	852	5.3
	9	Ø10	4	115	460	3.8
	10	Ø6	17	95	1612	3.6
					Totals:	21.2
Pórtico 16	11	Ø16	2	585	1170	18.5
	12	Ø12	2	570	1140	18.0
	13	Ø12	2	520	1040	9.2
	14	Ø10	2	495	990	11.1
	15	Ø12	3	420	1260	11.2
	16	Ø20	1	320	640	15.8
	17	Ø16	2	310	620	9.8
	18	Ø12	2	585	1170	10.8
	19	Ø12	2	563	1126	7.0
	20	Ø10	2	495	990	6.1
	21	Ø10	2	420	840	7.2
	22	Ø12	3	375	1125	10.0
	23	Ø20	2	350	700	2.8
	24	Ø12	2	350	700	2.8
	25	Ø12	2	350	700	2.8
	26	Ø8	44	140	6160	26.0
	27	Ø6	38	136	5168	11.5
					Totals:	206.4
Pórtico 17	28	Ø12	2	293	586	5.2
	29	Ø10	2	293	586	3.6
	31	Ø6	8	116	928	2.1
					Totals:	17.7
Pórtico 18	32	Ø12	2	925	1850	16.4
	33	Ø12	2	460	920	8.2
	34	Ø10	2	925	1850	14.4
	35	Ø10	2	460	920	7.7
	36	Ø10	2	195	390	2.4
	37	Ø10	2	180	360	1.2
	38	Ø10	2	140	280	1.7
	39	Ø10	2	130	260	1.6
	40	Ø6	62	95	5952	13.2
					Totals:	69.1
					Ø6:	33.4
					Ø8:	45.5
					Ø12:	97.9
					Ø16:	104.7
					Ø20:	36.4
					Total:	385.1



PRIMER PISO
Despléce de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

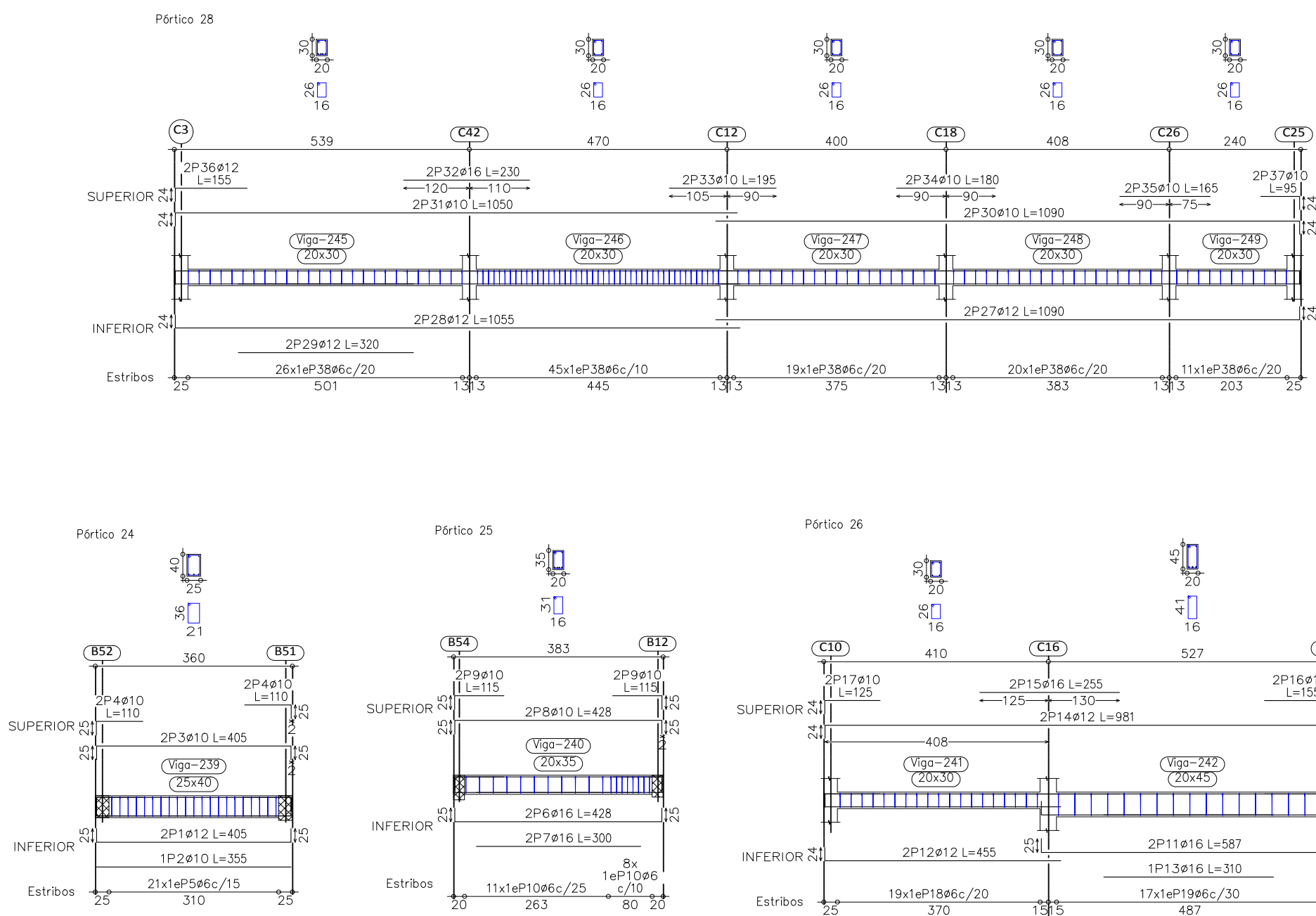


PRIMER PISO
Despléce de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 20	1	Ø16	2	405	810	12.8
	2	Ø12	1	355	355	3.2
	3	Ø16	2	405	810	12.8
	4	Ø16	4	115	460	7.3
	5	Ø6	20	126	2520	5.6
Total+10%:						45.9
Pórtico 21	6	Ø12	2	876	1752	15.6
	7	Ø12	1	280	280	2.5
	8	Ø10	2	876	1752	10.8
	9	Ø10	2	185	370	2.3
	10	Ø10	4	125	500	3.1
	11	Ø6	31	106	3286	7.3
Total+10%:						45.8
Pórtico 22	12	Ø12	2	716	1432	12.7
	13	Ø12	2	355	710	6.3
	14	Ø16	2	403	806	12.7
	15	Ø10	2	716	1432	6.8
	16	Ø12	2	403	806	7.2
	17	Ø16	2	195	390	6.2
	18	Ø12	3	180	540	4.8
	19	Ø10	2	180	360	2.2
	20	Ø16	2	160	320	5.1
	21	Ø6	24	126	3024	6.7
	22	Ø6	29	96	2784	6.2
	Total+10%:					86.8
Pórtico 23	23	Ø12	2	925	1850	16.4
	24	Ø12	2	460	920	8.2
	25	Ø10	2	925	1850	11.4
	26	Ø10	2	460	920	5.7
	27	Ø16	2	230	460	7.3
	28	Ø12	2	210	420	3.7
	29	Ø10	2	145	290	1.8
	30	Ø10	2	140	280	1.7
	31	Ø6	62	96	5952	13.2
	Total+10%:					76.3
	Ø6:	43.0				
	Ø12:	52.6				
	Ø16:	70.6				
	Total:	254.8				

PRIMER PISO
Despléce de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 29	1	Ø16	2	750	1500	23.7
	2	Ø16	2	320	640	10.1
	3	Ø16	2	750	1500	23.7
	4	Ø10	2	150	300	1.8
	5	Ø6	55	126	6930	15.4
Total+10%:						80.2
Pórtico 30	6	Ø12	2	536	1072	9.5
	7	Ø10	2	536	1072	6.6
	8	Ø10	4	140	560	1.5
	9	Ø6	45	116	5220	11.6
	Total+10%:					34.3
	Ø6:	28.7				
	Ø10:	13.0				
	Ø12:	16.5				
	Ø16:	63.3				
	Total:	116.5				

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 24	1	Ø12	2	405	810	7.2
	2	Ø10	1	355	355	2.2
	3	Ø10	2	405	810	5.0
	4	Ø10	4	110	440	2.7
	5	Ø6	21	126	2646	5.9
Total+10%:						25.3
Pórtico 25	6	Ø16	2	428	856	13.5
	7	Ø16	2	300	600	9.5
	8	Ø10	2	428	856	5.3
	9	Ø10	4	115	460	2.8
	10	Ø6	19	106	2014	4.5
Total+10%:						39.2
Pórtico 26	11	Ø16	2	587	1174	18.5
	12	Ø12	2	455	910	8.1
	13	Ø16	1	310	310	4.9
	14	Ø12	2	981	1962	17.4
	15	Ø16	2	255	510	6.0
	16	Ø12	2	155	310	2.8
	17	Ø10	2	125	250	1.5
	18	Ø6	19	96	1824	4.0
	19	Ø6	17	126	2142	4.8
	Total+10%:					77.0
Pórtico 27	20	Ø12	2	704	1408	12.5
	21	Ø12	2	320	640	5.7
	22	Ø16	2	704	1408	22.2
	23	Ø20	2	350	700	17.3
	24	Ø12	2	155	310	2.8
	25	Ø6	26	116	3016	6.7
	26	Ø8	11	120	1320	5.2
	Total+10%:					79.6
Pórtico 28	27	Ø12	2	1090	2180	19.4
	28	Ø12	2	1055	2110	18.7
	29	Ø12	2	320	640	5.7
	30	Ø10	2	1090	2180	13.4
	31	Ø10	2	1050	2100	12.6
	32	Ø16	2	230	460	7.3
	33	Ø10	2	195	390	2.4
	34	Ø10	2	180	360	2.2
	35	Ø10	2	165	330	2.0
	36	Ø12	2	155	310	2.8
	37	Ø10	2	95	190	1.2
	38	Ø6	121	96	11616	25.8
	Total+10%:					125.2
	Ø6:	96.9				
	Ø8:	6.7				
	Ø10:	98.9				
	Ø12:	113.5				
	Ø16:	92.2				
	Ø20:	19.1				
	Total:	346.3				

UNIVERSIDAD AUTÓNOMA
JUAN MISAEL SARACHO

UNIVERSITARIO:
HERBAS HUANCA
JUANA RAQUEL

ASIGNATURA:
CIV – 502
PROYECTO DE
INGENIERIA CIVIL II

TRIBUNAL: V°B°
Dr. Ing. Alberto Benítez
Ing. Armando Almendras
Ing. Carola Sánchez

"DISEÑO ESTRUCTURAL PARA LA
CONSTRUCCIÓN DE UNA ESTACIÓN
DE BOMBEROS PARA EL MUNICIPIO
DE ENTRE RÍOS"

CARACTER:
PLANOS DETALLE DE VIGAS Y LOSAS PRIMER PISO

ESCALA: 1/100
FECHA: FEBRERO DE 2021
LÁMINA: 9/15

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 1	1	Ø12	2	370	740	6.6
	2	Ø10	2	370	740	4.6
	3	Ø10	4	105	420	3.6
	4	Ø6	14	96	1344	3.0
Total+10%:						18.5
Pórtico 2	5	Ø12	2	767	1534	13.6
	6	Ø10	2	767	1534	9.5
	7	Ø10	2	345	690	3.3
	8	Ø10	2	150	300	1.8
	9	Ø6	24	96	2304	2.2
Total+10%:						40.0
Pórtico 3	10	Ø12	2	568	1136	10.1
	11	Ø10	2	568	1136	7.0
	12	Ø10	2	150	300	1.8
	13	Ø10	2	145	290	1.8
	14	Ø6	24	96	2304	2.2
	Total+10%:					28.4
Pórtico 4+Pórtico 9+Pórtico 11						
15	Ø12	2	630	1260	11.2	
16	Ø12	2	645	1290	11.5	
17	Ø12	2	640	1280	11.4	
18	Ø10	2	625	1250	7.7	
19	Ø10	2	645	1290	8.0	
20	Ø10	2	635	1270	7.8	
21	Ø10	2	270	540	3.3	
22	Ø10	2	265	530	3.3	
23	Ø10	4	170	680	4.2	
24	Ø6	86	96	8256	18.3	
Total+10%:						95.4
Pórtico 5	25	Ø12	2	569	1138	10.1
	26	Ø10	2	569	1138	7.0
	27	Ø10	2	145	290	1.8
	28	Ø6	25	96	2400	2.3
Total+10%:						28.6
Ø6: 83.2						
Ø10: 159.5						
Ø12: 157.0						
Total: 399.7						

Resumen Acero CUBIERTA Vigas	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6	1369.6	334	
Ø8	32.5	14	
Ø10	811.0	550	
Ø12	654.8	639	
Ø16	75.8	132	1669

CUBIERTA
Despiece de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 12	1	Ø12	2	1073	2146	19.1
	2	Ø10	2	1073	2146	13.2
	3	Ø10	2	230	460	2.8
	4	Ø6	30	96	4800	10.7
Total+10%:						50.4
Pórtico 13	5	Ø12	2	1073	2146	19.1
	6	Ø10	2	1073	2146	13.2
	7	Ø10	2	220	440	2.7
	8	Ø10	2	150	300	1.8
	9	Ø6	48	96	4608	10.2
Total+10%:						53.8
Pórtico 14	10	Ø16	2	472	944	14.9
	11	Ø12	1	422	422	3.7
	12	Ø10	2	472	944	5.8
	13	Ø16	2	145	300	6.2
	14	Ø16	2	180	360	5.7
	15	Ø6	37	135	4665	10.3
Total+10%:						51.3
Pórtico 15	16	Ø16	2	472	944	14.9
	17	Ø12	1	422	422	3.7
	18	Ø10	2	472	944	5.8
	19	Ø16	2	200	400	6.3
	20	Ø16	2	180	360	5.7
Pórtico 16	21	Ø8	25	130	3250	12.8
	Total+10%:					54.1
Pórtico 17	22	Ø12	2	426	852	7.6
	23	Ø10	2	426	852	5.3
	24	Ø10	4	115	460	2.8
	25	Ø6	21	96	2016	4.5
Total+10%:						22.2
Pórtico 18	26	Ø12	2	1065	2130	18.9
	27	Ø10	2	1065	2130	13.1
	28	Ø10	2	225	450	2.8
	29	Ø10	2	155	310	1.9
	30	Ø10	2	140	280	1.7
	31	Ø6	70	96	6720	14.9
Total+10%:						58.6
Pórtico 19	32	Ø12	2	980	1960	17.4
	33	Ø12	2	980	1960	17.4
	34	Ø10	2	230	460	2.8
	35	Ø10	2	150	300	1.8
	36	Ø10	2	145	290	1.8
	37	Ø6	44	96	4224	9.4
Total+10%:						55.7
Ø6: 66.1						
Ø8: 34.1						
Ø10: 80.1						
Ø12: 117.7						
Ø16: 50.1						
Total: 346.1						

Pórtico 14		40	25	21	
C34		427			C37
SUPERIOR	2P14ø16 L=190	427	2P12ø16 L=472	2P13ø16 L=190	
			(Vip=328)		
			(25x45)		
INFERIOR	2P10ø16 L=472		2P11ø12 L=422		
Estribos	9x 1eP15ø6 c/10	90	28x1eP15ø6/10	277	30

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

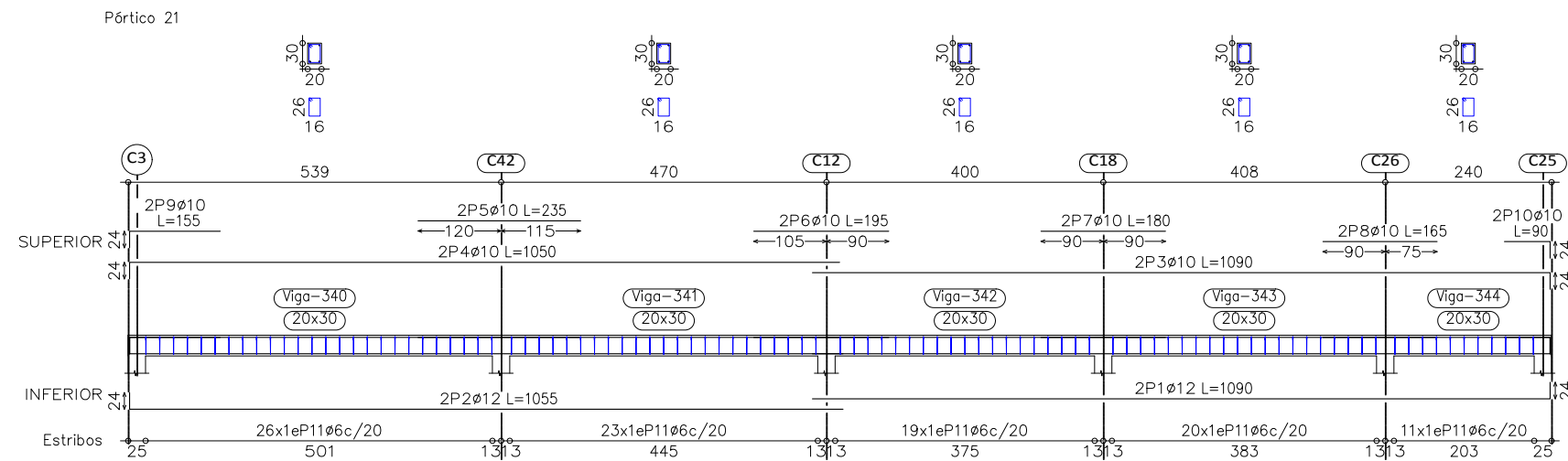
Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

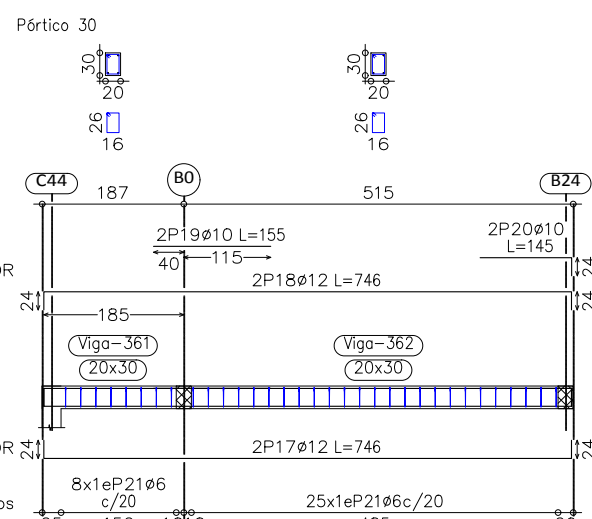
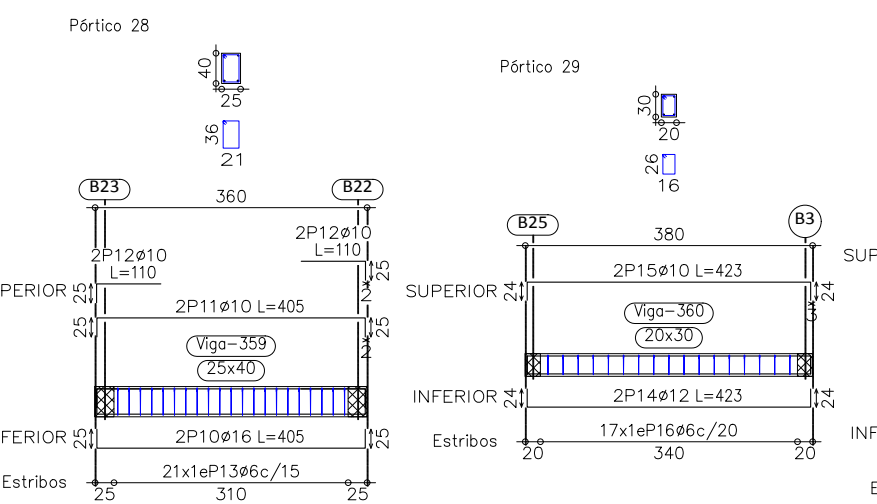
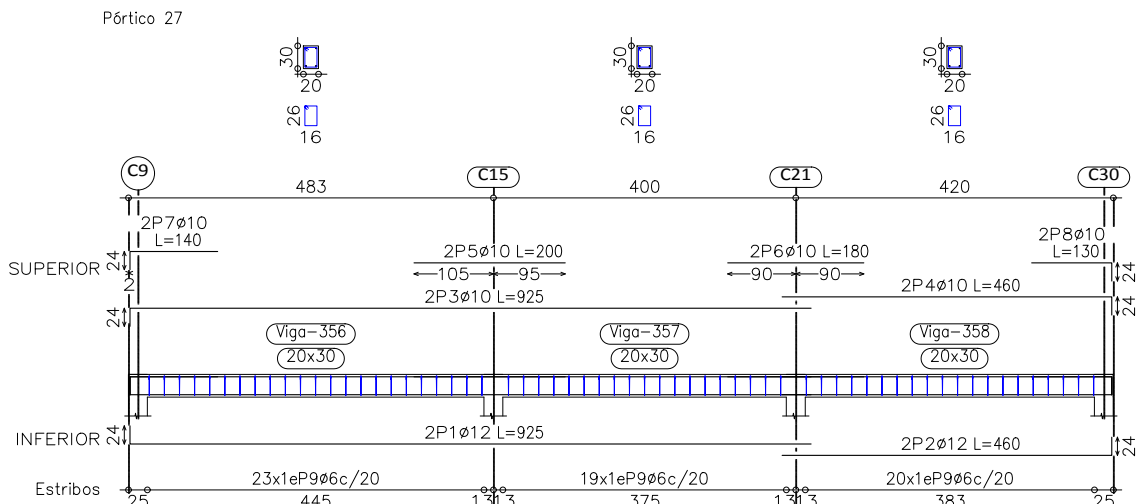
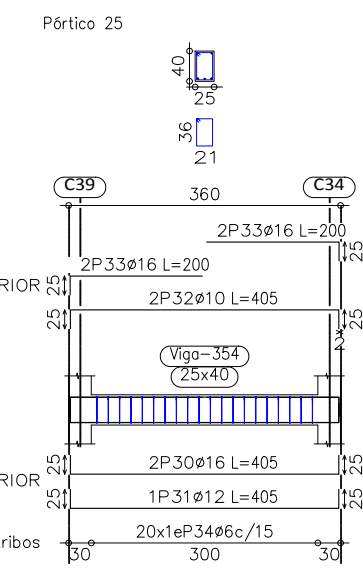
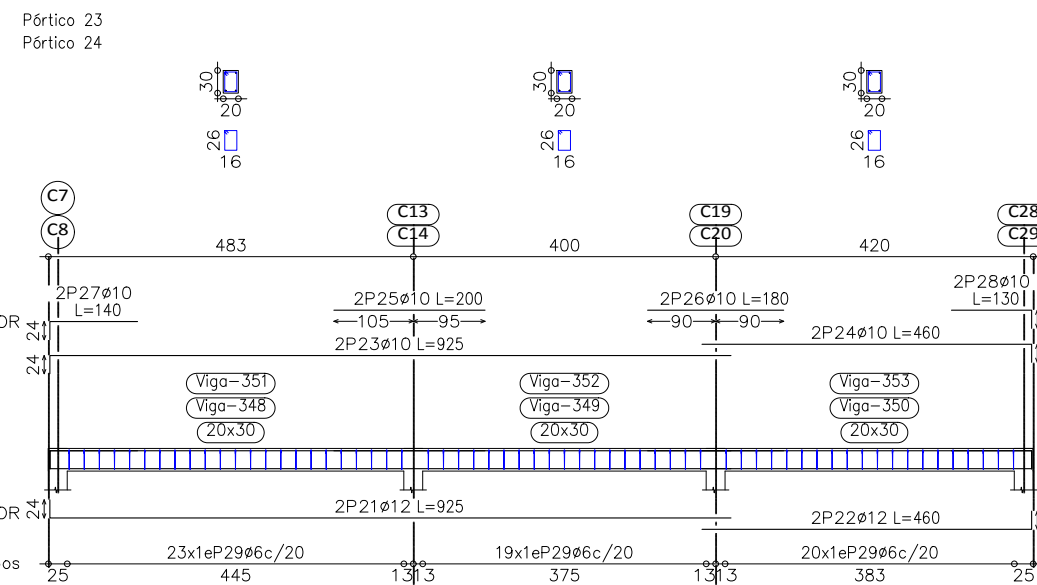
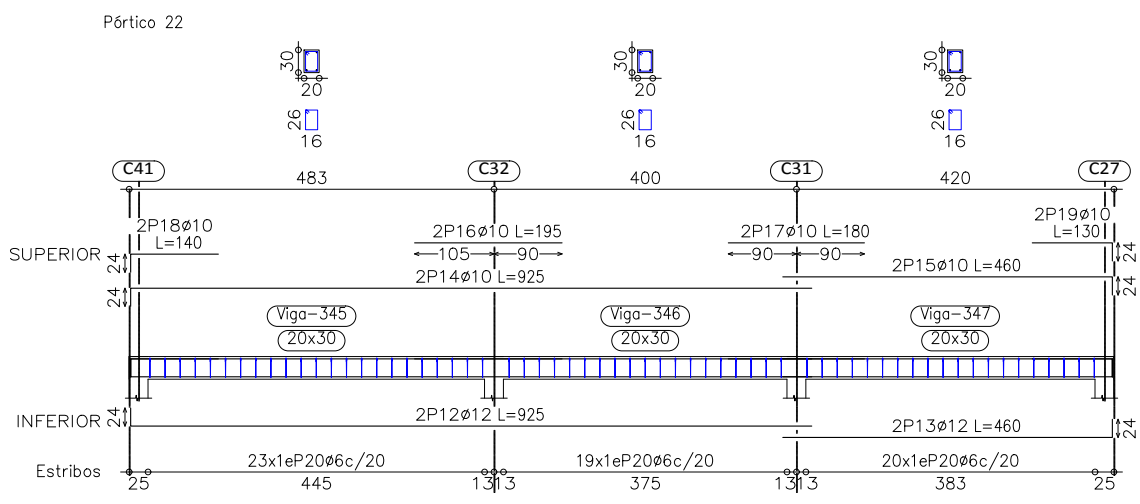
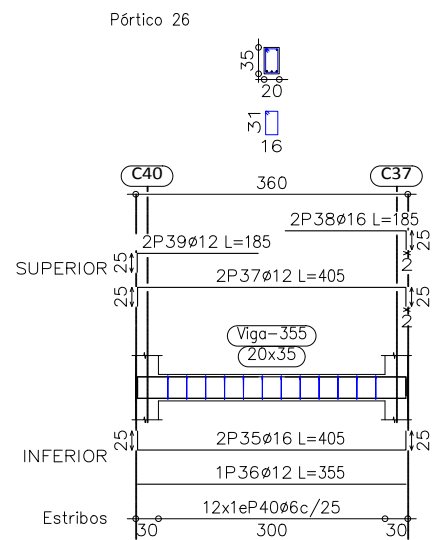
Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

Pórtico 14	34	Ø12	2	427	854	7.6
35	Ø10	2	427	854	5.3	
36	Ø10	2	115	460	2.8	
37	Ø6	21	96	2016	4.5	
Total+10%:						22.2

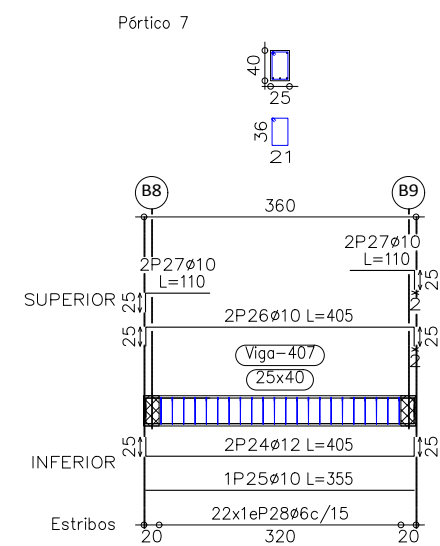
Pórtico 14	34	Ø12	2	427	854
------------	----	-----	---	-----	-----



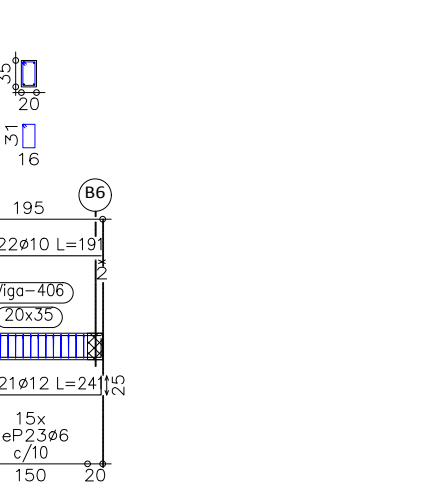
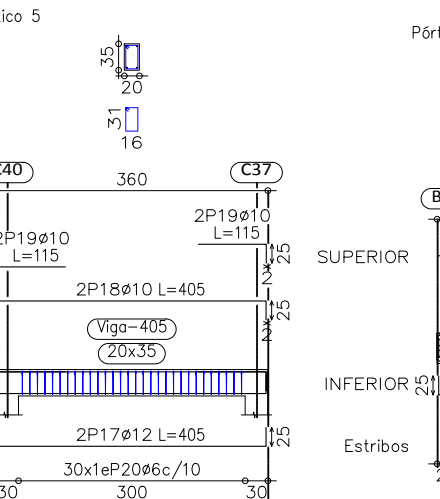
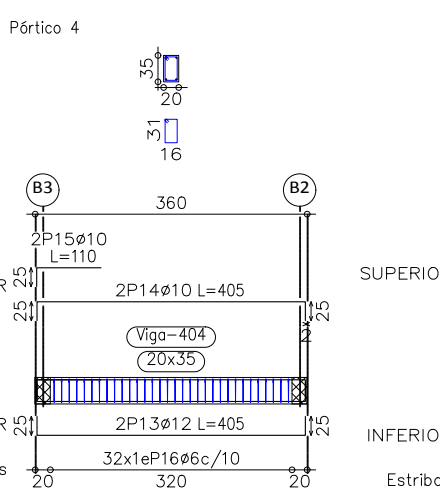
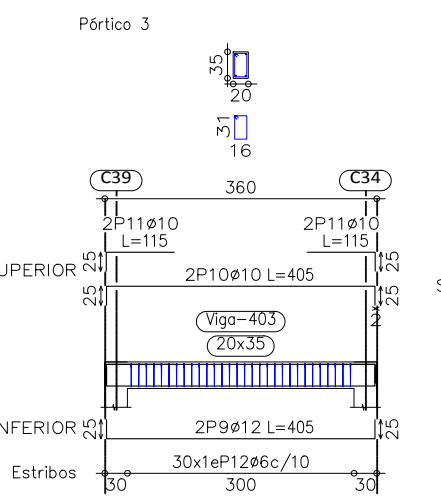
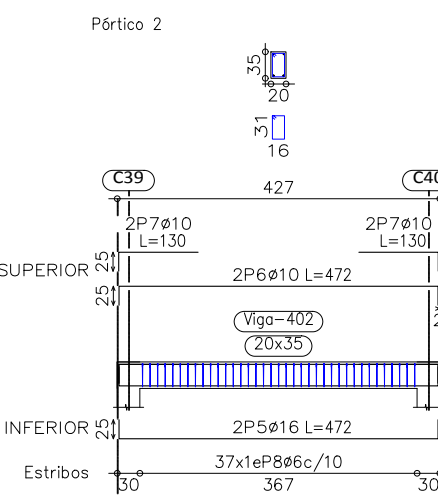
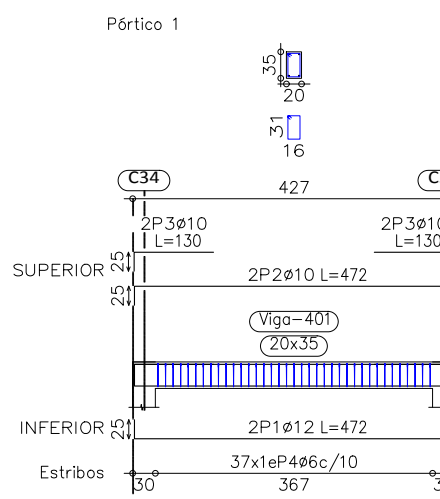
CUBIERTA
Despiece de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100



TANQUE
Despiece de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100



Resumen Acero	Long. total	Peso+10%	Total
TANQUE	(m)	(kg)	
Vigas			
AH-500CN Ø6	219.6	54	
Ø10	84.9	58	
Ø12	46.7	46	
Ø16	9.4	16	174



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 21	1	Ø12	2	1090	2180	39.4
	2	Ø12	2	1055	2110	18.7
	3	Ø10	2	1090	2180	11.4
	4	Ø10	2	1050	2100	12.9
	5	Ø10	2	135	470	2.9
	6	Ø10	2	195	390	2.4
	7	Ø10	2	180	360	2.2
	8	Ø10	2	165	330	2.0
	9	Ø10	2	155	310	1.9
	10	Ø10	2	90	180	1.1
	11	Ø6	99	96	9504	21.1
Total+10%					107.8	
Pórtico 22	12	Ø12	2	925	1850	16.4
	13	Ø12	2	460	920	8.2
	14	Ø10	2	925	1850	11.4
	15	Ø10	2	460	920	5.7
	16	Ø10	2	395	390	2.4
	17	Ø10	2	180	360	2.2
	18	Ø10	2	140	280	1.7
	19	Ø10	2	130	260	1.6
	20	Ø6	62	96	5952	13.2
Total+10%					69.1	
Pórtico 23+Pórtico 24	21	Ø12	2	925	1850	16.4
	22	Ø12	2	460	920	8.2
	23	Ø10	2	925	1850	11.4
	24	Ø10	2	460	920	5.7
	25	Ø10	2	200	400	2.5
	26	Ø10	2	180	360	2.2
	27	Ø10	2	140	280	1.7
	28	Ø10	2	130	260	1.6
	29	Ø6	62	96	5952	13.2
Total+10%					69.2	
Pórtico 25	30	Ø16	2	405	810	12.8
	31	Ø12	1	405	405	3.6
	32	Ø10	2	405	810	5.0
	33	Ø16	4	200	800	12.6
	34	Ø6	20	126	2520	5.6
Total+10%					43.6	
Pórtico 26	35	Ø16	2	405	810	12.8
	36	Ø12	1	355	355	3.2
	37	Ø12	2	405	810	7.2
	38	Ø16	2	185	370	5.8
	39	Ø12	2	185	370	3.3
	40	Ø6	12	106	1272	2.8
Total+10%					38.6	
					Ø6:	76.0
					Ø10:	130.9
					Ø12:	142.2
					Ø16:	88.4
					Total:	397.5

CUBIERTA
Despiece de vigas
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Elemento	Pos.	Diám.	No.	Long. (cm)	Total AH-500CN (cm) (kg)
Pórtico 27	1	Ø12	2	925	1850 16.4
	2	Ø12	2	460	920 8.2
	3	Ø10	2	925	1850 11.4
	4	Ø10	2	460	920 5.7
	5	Ø10	2	200	400 2.5
	6	Ø10	2	180	360 2.2
	7	Ø10	2	140	280 1.7
	8	Ø10	2	130	260 1.6
	9	Ø6	62	96	5952 13.2
Total+10%					69.2
Pórtico 28	10	Ø16	2	405	810 12.8
	11	Ø10	2	405	810 5.0
	12	Ø10	4	110	440 2.7
	13	Ø6	21	126	2646 5.9
Total+10%					29.0
Pórtico 29	14	Ø12	2	423	846 7.5
	15	Ø10	2	423	846 5.2
	16	Ø6	17	96	1632 3.6
Total+10%					17.9
Pórtico 30	17	Ø12	2	746	1492 13.2
	18	Ø12	2	746	1492 13.2
	19	Ø10	2	155	310 1.9
	20	Ø10	2	145	290 1.8
	21	Ø6	33	96	3168 7.0
	Total+10%				
					Ø6: 31.5
					Ø10: 45.9
					Ø12: 64.4
					Ø16: 14.1
					Total: 156.9

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Pórtico 1	1	Ø12	2	472	944	8.4
	2	Ø10	2	472	944	5.8
	3	Ø10	4	130	520	3.2
	4	Ø6	37	106	3922	8.7
Total+10%					28.7	
Pórtico 2	5	Ø16	2	472	944	14.9
	6	Ø10	2	472	944	5.8
	7	Ø10	4	130	520	3.2
	8	Ø6	37	106	3922	8.7
Total+10%					35.9	
Pórtico 3	9	Ø12	2	405	810	7.2
	10	Ø10	2	405	810	5.0
	11	Ø10	4	115	460	2.8
	12	Ø6	30	106	3180	7.1
Total+10%					24.3	
Pórtico 4	13	Ø12	2	405	810	7.2
	14	Ø10	2	405	810	5.0
	15	Ø10	2	110	220	1.4
	16	Ø6	32	106	3392	7.5
Total+10%					23.2	
Pórtico 5	17	Ø12	2	405	810	7.2
	18	Ø10	2	405	810	5.0
	19	Ø10	4	115	460	2.8
	20	Ø6	30	106	3180	7.1
Total+10%					24.3	
Pórtico 6	21	Ø12	2	241	482	4.3
	22	Ø10	2	191	382	2.4
	23	Ø6	15	106	1590	3.5
	Total+10%				11.2	
Pórtico 7	24	Ø12	2	405	810	7.2
	25	Ø10	1	365	365	2.2
	26	Ø10	2	405	810	5.0
	27	Ø10	4	110	440	2.7
	28	Ø6	22	126	2772	6.2
Total+10%					25.8	
					Ø6:	53.6
					Ø10:	57.7
					Ø12:	45.5
					Ø16:	16.4
					Total:	173.2

UNIVERSIDAD AUTÓNOMA
JUAN MISAEL SARACHO

UNIVERSITARIO:
HERBAS HUANCA
JUANA RAQUEL

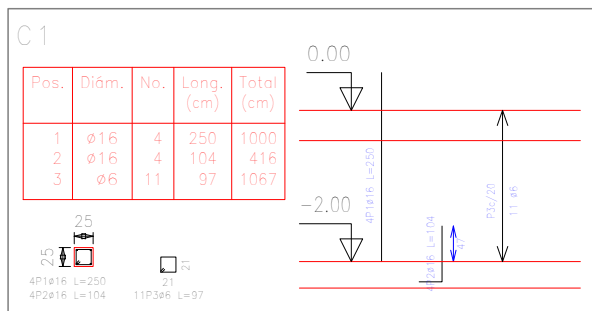
ASIGNATURA:
CIV – 502
PROYECTO DE
INGENIERIA CIVIL II

TRIBUNAL: V°B°
Dr. Ing Alberto Benítez
Ing. Armando Almendras
Ing. Carola Sánchez

"DISEÑO ESTRUCTURAL PARA LA
CONSTRUCCIÓN DE UNA ESTACIÓN
DE BOMBEROS PARA EL MUNICIPIO
DE ENTRE RÍOS"

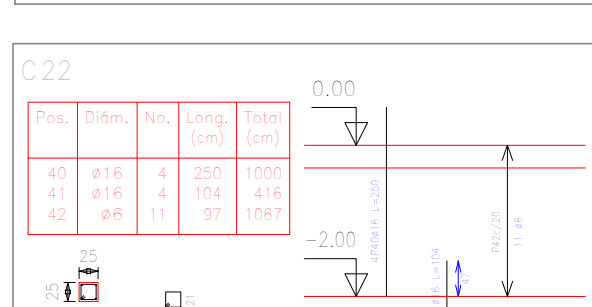
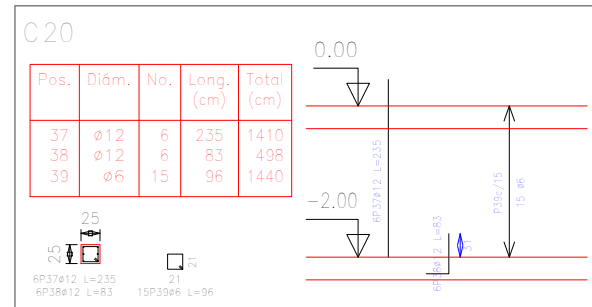
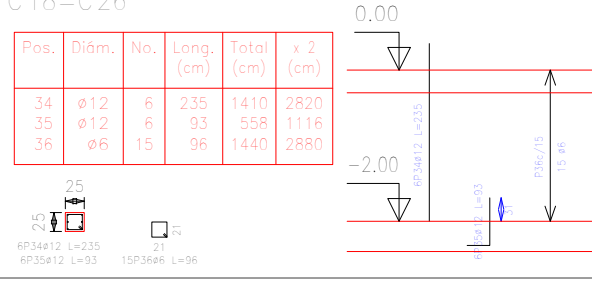
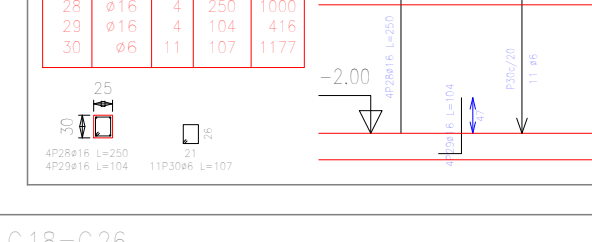
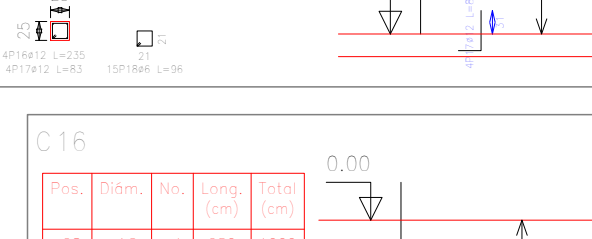
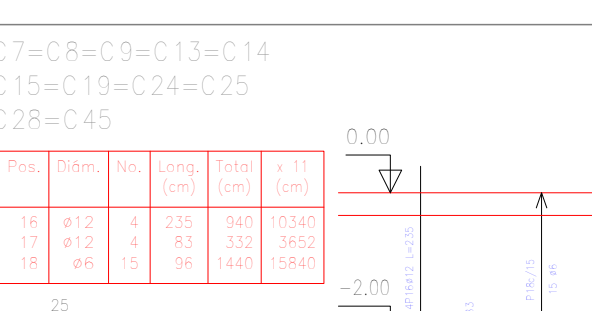
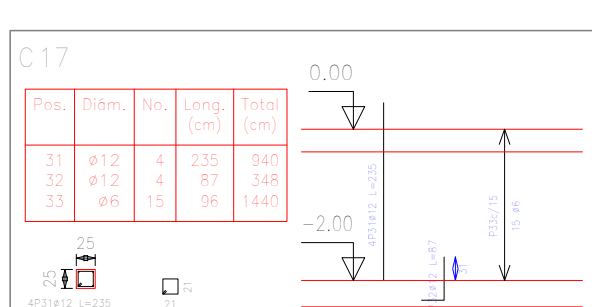
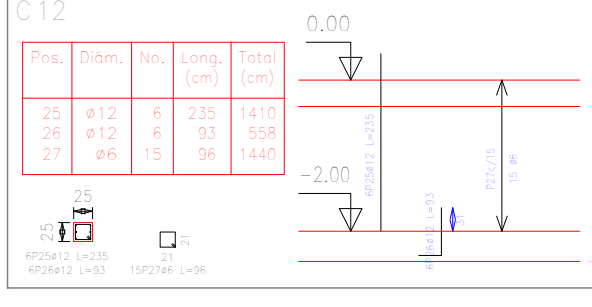
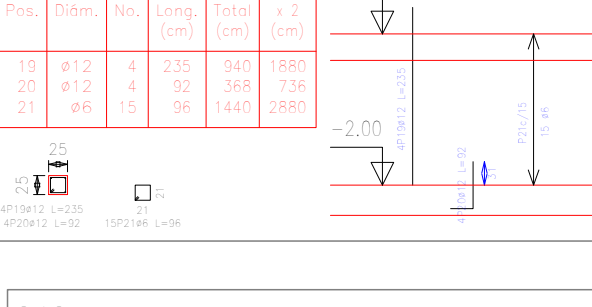
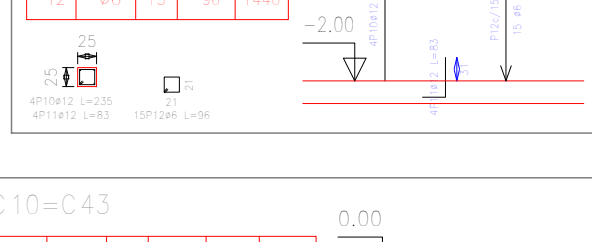
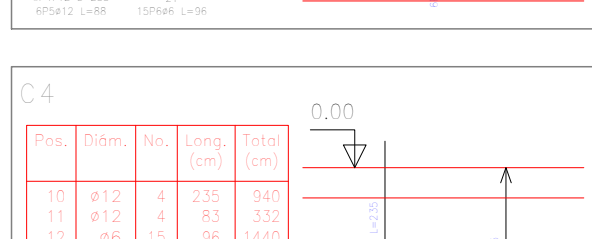
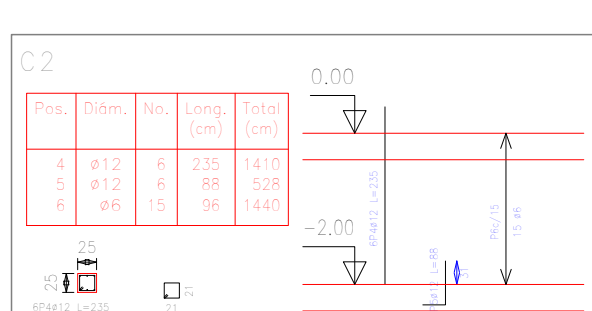
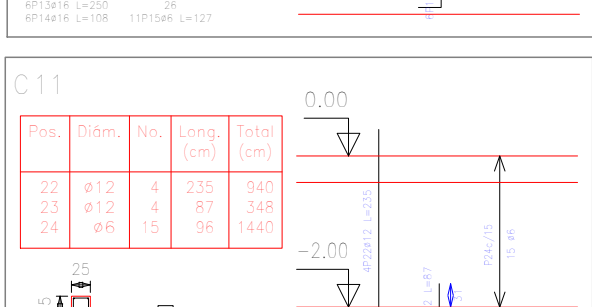
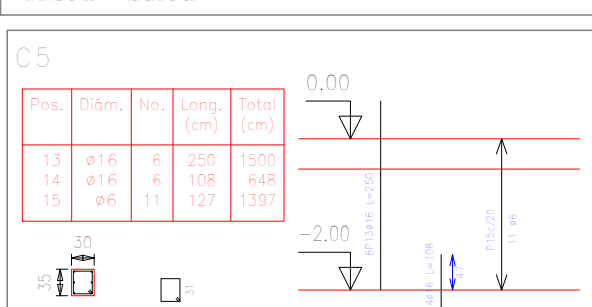
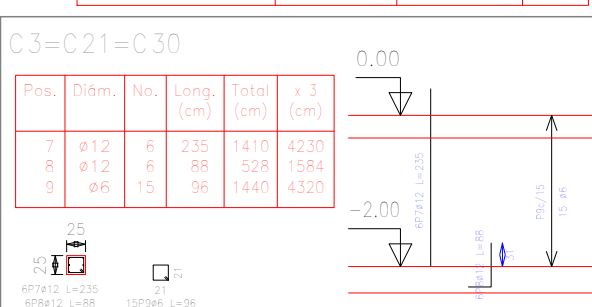
CARACTER:
PLANOS DETALLE DE VIGAS Y LOSAS CUBIERTA Y
TANQUE

ESCALA: 1/100
FECHA: FEBRERO
DE 2021
LÁMINA: 11/15



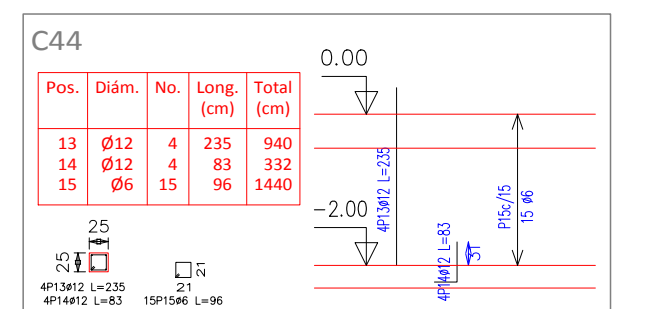
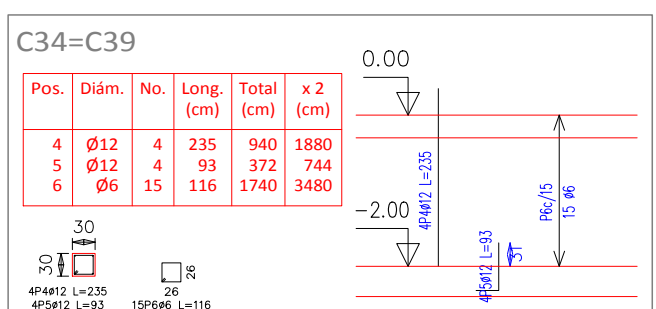
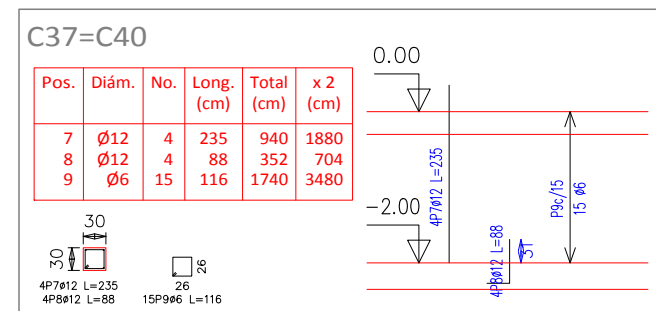
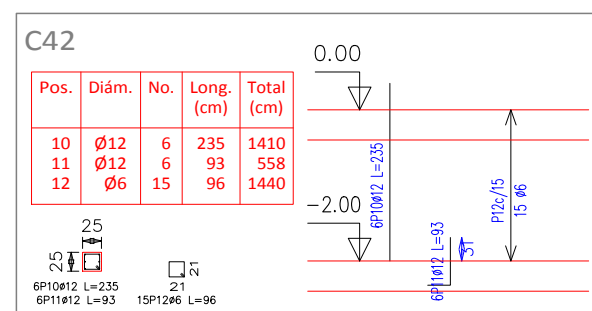
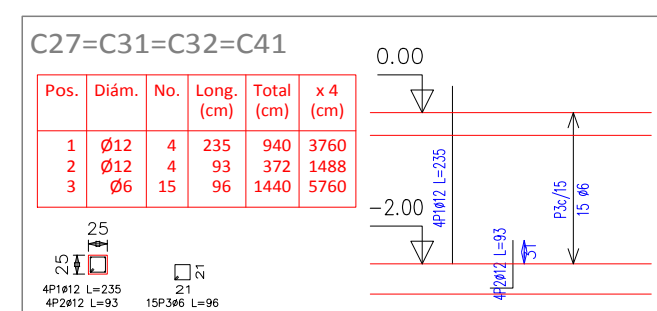
Pilares que terminan en PLANTA BAJA
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Resumen Acero PLANTA BAJA Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6		577.5	141	
Ø12		535.9	523	
Ø16		64.0	111	775



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
C1	1	Ø16	4	250	1000	16.8
	2	Ø16	4	104	416	8.4
	3	Ø6	11	97	1067	2.4
Total+10%: 27.6						
C2	4	Ø12	6	235	1410	15.1
	5	Ø12	6	88	528	4.7
	6	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C3=C27=C30	7	Ø12	6	235	1410	15.1
	8	Ø12	6	88	528	4.7
	9	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C4	10	Ø12	4	235	940	8.3
	11	Ø12	4	87	348	2.9
	12	Ø6	15	96	1440	3.2
Total+10%: 14.8						
C5	13	Ø16	6	250	1500	23.7
	14	Ø16	6	108	648	10.2
	15	Ø6	11	127	1357	3.1
Total+10%: 37.0						
C7=C8=C9=C13=C14=C15=C19=C24=C25=C28=C45	16	Ø12	4	235	940	8.3
	17	Ø12	4	83	332	2.9
	18	Ø6	15	96	1440	3.2
Total+10%: 14.8						
C10=C43	19	Ø12	6	235	1410	15.1
	20	Ø12	6	88	528	4.7
	21	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C11	22	Ø12	4	235	940	8.3
	23	Ø12	4	87	348	2.9
	24	Ø6	15	96	1440	3.2
Total+10%: 14.8						
C12	25	Ø12	6	235	1410	15.1
	26	Ø12	6	88	528	4.7
	27	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C16	28	Ø16	4	250	1000	16.8
	29	Ø16	4	104	416	8.4
	30	Ø6	11	107	1127	2.4
Total+10%: 27.6						
C17=C22	31	Ø12	4	235	940	8.3
	32	Ø12	4	87	348	2.9
	33	Ø6	15	96	1440	3.2
Total+10%: 14.8						
C18=C26	34	Ø12	6	235	1410	15.1
	35	Ø12	6	88	528	4.7
	36	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C20	37	Ø12	6	235	1410	15.1
	38	Ø12	6	88	528	4.7
	39	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C21	37	Ø12	6	235	1410	15.1
	38	Ø12	6	88	528	4.7
	39	Ø6	15	96	1440	3.2
Total+10%: 22.4						
C22	40	Ø16	4	250	1000	16.8
	41	Ø16	4	104	416	8.4
	42	Ø6	11	97	1067	2.4
Total+10%: 27.6						

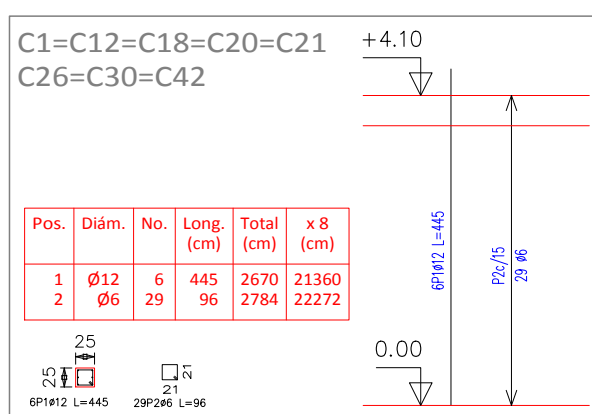
Pilares que terminan en PLANTA BAJA
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
C27=C31=C32=C41	1	Ø12	4	235	940	8.3
	2	Ø12	4	88	352	3.9
	3	Ø6	15	96	1440	3.2
Total+10%: 15.8						
C34=C39	4	Ø12	4	235	940	8.3
	5	Ø12	4	88	352	3.9
	6	Ø6	15	96	1440	3.2
Total+10%: 17.1						
C37=C40	7	Ø12	4	235	940	8.3
	8	Ø12	4	88	352	3.9
	9	Ø6	15	96	1440	3.2
Total+10%: 16.8						
C42	10	Ø12	6	235	1410	12.5
	11	Ø12	6	88	528	5.0
	12	Ø6	15	96	1440	3.2
Total+10%: 20.8						
C44	13	Ø12	4	235	940	8.3
	14	Ø12	4	88	352	3.9
	15	Ø6	15	96	1440	3.2
Total+10%: 15.8						
Ø6: 38.2						
Ø12: 133.4						
Total: 171.6						

Pilares que terminan en PRIMER PISO
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Resumen Acero PRIMER PISO Pilares	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6	904.5	221	
Ø12	637.4	622	
Ø16	55.2	96	939



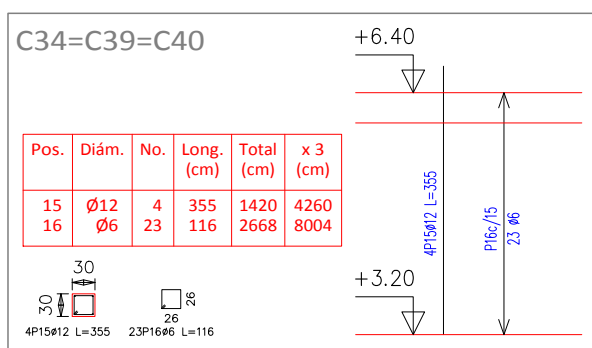
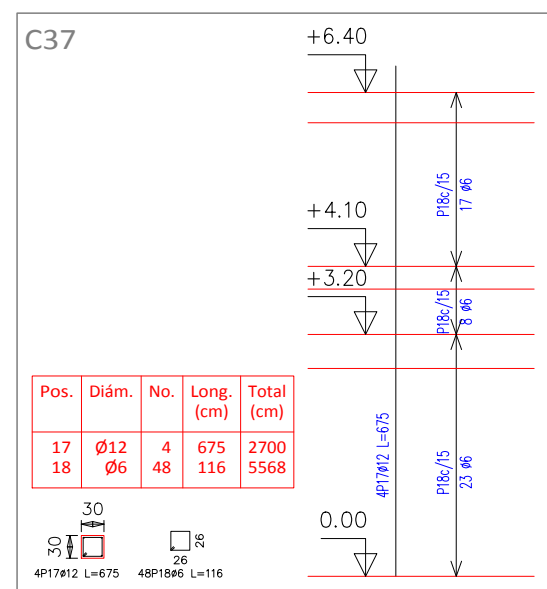
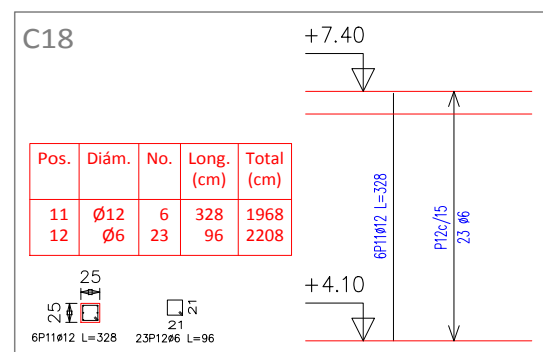
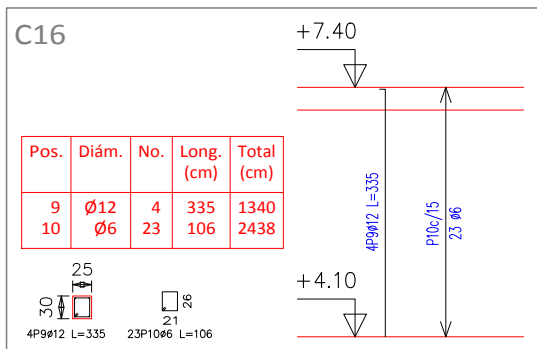
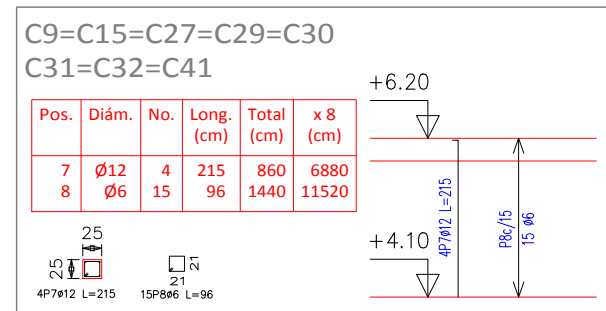
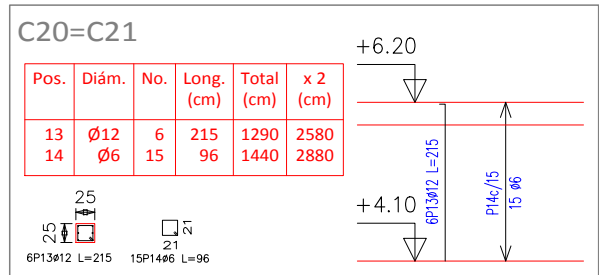
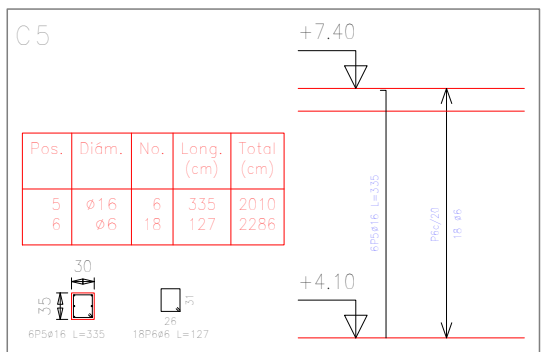
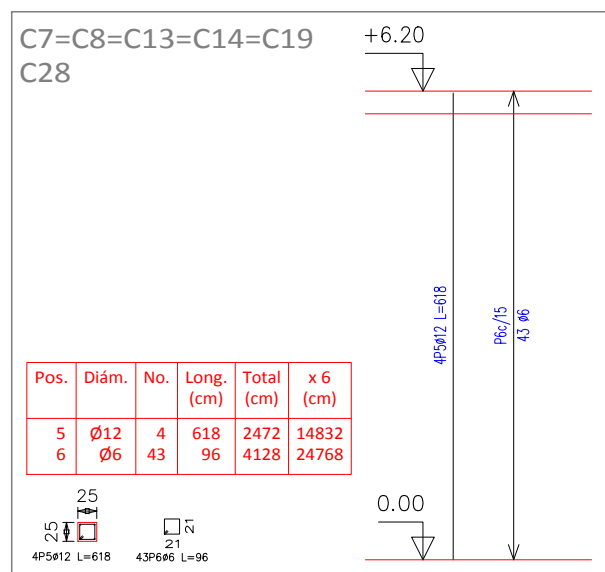
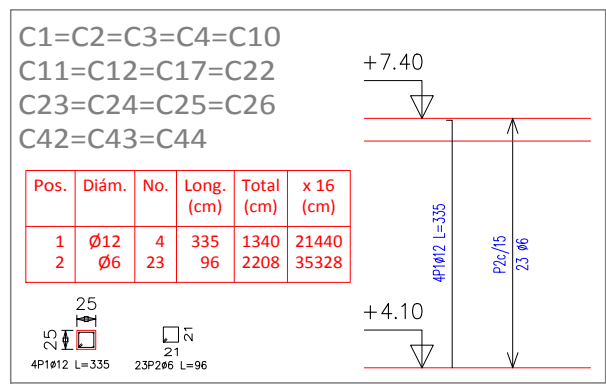
Pilares que terminan en
CUBIERTA
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Resumen Acero CUBIERTA Pilares	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6	950.0	232	803
Ø12	559.8	547	
Ø16	13.6	24	

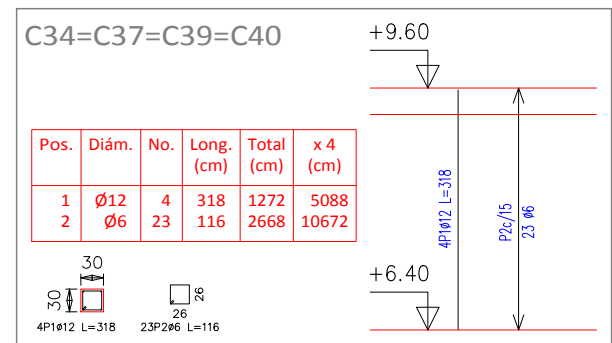
Elemento	Pos.	Díam. no.	No. Long.	Total (cm)	AH-500CN (kg)	
C1-C3+C4+C5+C10+C11+C12	1	012	4	335	1340	11,9
C17-C20+C21+C22+C23+C26	2	006	21	96	2428	18,5
C43-C54-C64						196,0
C5	5	016	6	335	1340	11,9
	6	006	21	96	2428	18,5
						196,0
C7-C8+C13+C14+C19+C28	5	012	4	617	2458	21,9
	6	006	43	96	2458	18,5
						209,2
C9-C15-C27-C29-C30-C31-C32-C41	7	012	4	215	96	16,6
	8	006	15	96	1440	13,2
				Total-10%		11,9
C16	9	012	4	335	1340	11,9
	10	006	23	106	2428	18,5
				Total-10%		19,0
C18	11	012	3	328	1568	17,5
	12	006	23	96	2428	18,5
				Total-10%		24,6
C20-C21	13	012	16	235	1280	15,1
	14	006	15	96	1440	13,2
				Total-10%		16,2
C34-C39-C40	15	012	4	355	1420	12,6
	16	006	23	116	2658	5,9
				Total-10%	(x3)	20,4
C37	17	012	4	675	2750	24,0
	18	006	24	116	5568	14,4
				Total-10%	(x3)	40,0
C39	19	006	4	319	2119	18,5
				012:	547,3	
				006:	211,9	
				Total-10%		800,9

Pilares que terminan en
TANQUE
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

				(cm)	(cm)	(kg)
C34=C37=C39=C40	1 2	Ø12 Ø6	4 23	318 116	1272 2668	11.3 5.9
					Total=10% (x4):	18.9 75.6
					Ø6: Ø12: Total:	26.0 49.6 75.6



Resumen Acero TANQUE Pilares	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6	106.7	26	
Ø12	50.9	50	76



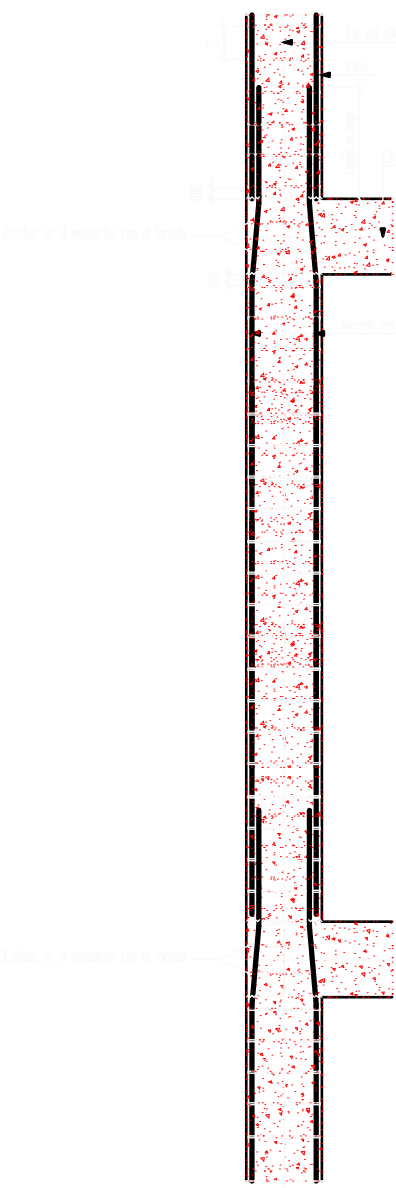
C1	C2	C3	C4	C5	C7=C8 C13=C14 C19=C28	C9	C10=C43	C11	C12	C15	C16	C17=C22	C18	C20	C21	C23	C24	C25	C26
25 4#12 L=335	25 4#12 L=335	25 4#12 L=335	25 4#12 L=335	30 4#16 L=340	25 4#12 L=408	25 4#12 L=215	25 4#12 L=335	25 4#12 L=335	25 4#12 L=335	25 4#12 L=215	25 4#12 L=335	25 4#12 L=335	25 4#12 L=335	25 4#12 L=335	25 4#12 L=215	25 4#12 L=215	25 4#12 L=335	25 4#12 L=335	25 4#12 L=335
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#16 L=460		25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99		23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#16 L=460		25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99		23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#16 L=460		25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99		23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#16 L=460		25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	25 4#12 L=445
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99		23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-500 , Control Normal
Escala: 1:100

Resumen Acero Forjados 1 a 4 Pilares	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø6	2619.1	639	
Ø12	1809.4	1767	
Ø16	111.4	193	2599

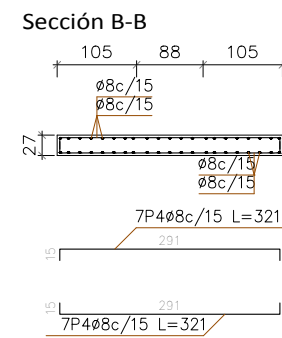
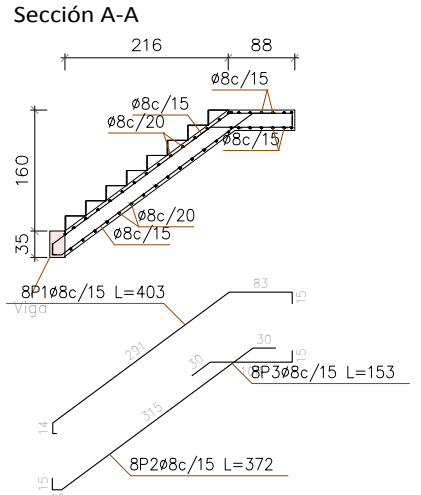
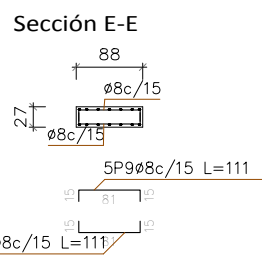
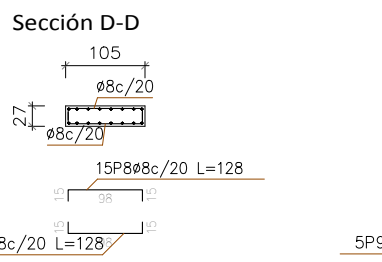
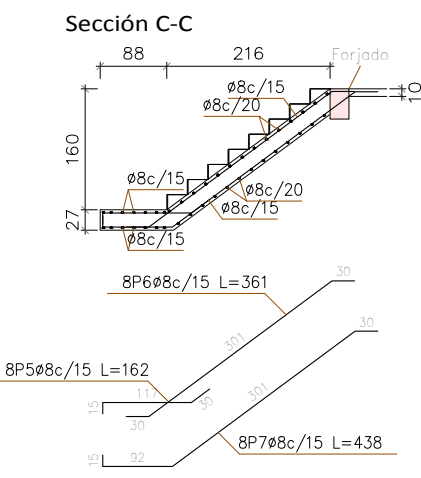
C27=C31 C32=C41	C29	C30	C34	C37	C39	C40	C42	C44	C45
			30 4#12 L=318	30 4#12 L=318	30 4#12 L=318	30 4#12 L=318			
			26 23#860/75 L=119	26 23#860/75 L=119	26 23#860/75 L=119	26 23#860/75 L=119			
25 4#12 L=215	25 4#12 L=215	25 4#12 L=215	30 4#12 L=355	30 4#12 L=355	30 4#12 L=355	30 4#12 L=355	25 4#12 L=335	25 4#12 L=335	
15#860/75 L=99	15#860/75 L=99	15#860/75 L=99	23#860/75 L=119	23#860/75 L=119	23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#12 L=355		30 4#12 L=355	30 4#12 L=355	25 4#12 L=445	25 4#12 L=445	25 4#12 L=408
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=119		23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#12 L=355		30 4#12 L=355	30 4#12 L=355	25 4#12 L=445	25 4#12 L=445	25 4#12 L=408
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=119		23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#12 L=355		30 4#12 L=355	30 4#12 L=355	25 4#12 L=445	25 4#12 L=445	25 4#12 L=408
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=119		23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#12 L=355		30 4#12 L=355	30 4#12 L=355	25 4#12 L=445	25 4#12 L=445	25 4#12 L=408
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=119		23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99
25 4#12 L=445	25 4#12 L=445	25 4#12 L=445	30 4#12 L=355		30 4#12 L=355	30 4#12 L=355	25 4#12 L=445	25 4#12 L=445	25 4#12 L=408
23#860/75 L=99	23#860/75 L=99	23#860/75 L=99	23#860/75 L=119		23#860/75 L=119	23#860/75 L=119	23#860/75 L=99	23#860/75 L=99	23#860/75 L=99

Detalle de estribo de pilares



Escalera 3

Tramo 1	
Ámbito	1.050 m
Espesor	0.27 m
Huella	0.270 m
Contrahuella	0.200 m
Desnivel que salva	3.20 m
Nº de escalones	16
Tramos consecutivos iguales	3
Planta final	TANQUE
Planta inicial	PLANTA BAJA
Peso propio	0.675 t/m2
Peldañoado (Realizado con ladrillo)	0.129 t/m2
Solado	0.091 t/m2
Barandillas	0.031 t/m
Sobrecarga de uso	0.308 t/m2
Hormigón	H-21 , Control Normal
Acero	AH-500 , Control Normal
Rec. geométrico	3.0 cm

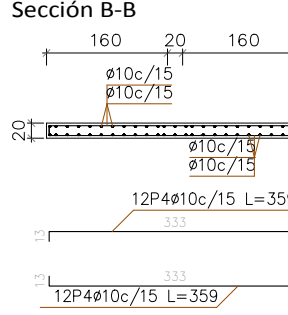
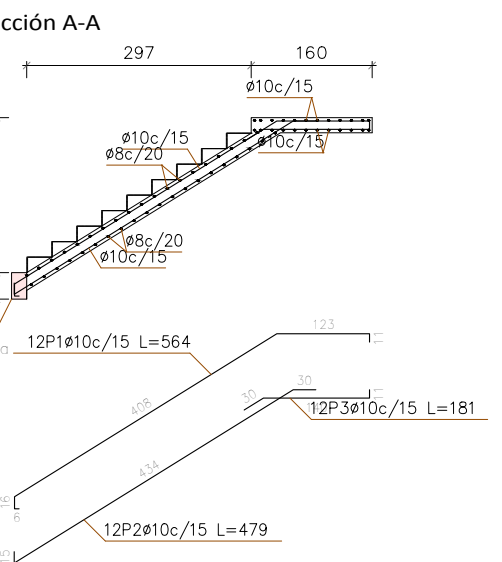
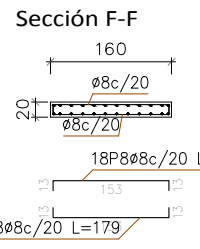
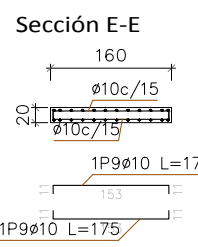
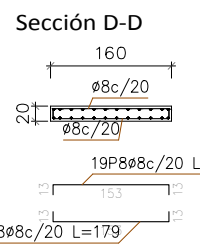
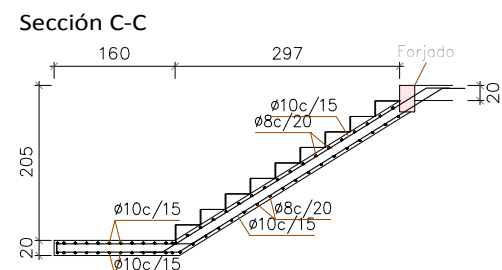


Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
Escalera 3-Tramo 1						
1	Ø8	8	403	3224	12.7	
2	Ø8	8	372	2976	11.7	
3	Ø8	8	153	1224	4.8	
4	Ø8	8	321	2568	9.7	
5	Ø8	8	162	1296	5.1	
6	Ø8	8	361	2888	11.4	
7	Ø8	8	438	3504	13.8	
8	Ø8	8	128	1024	3.3	
9	Ø8	10	111	1110	4.4	
				Total+10%	120.9	
				Ø8:	362.7	
				Total:	362.7	

Resumen Acero Escalera 3	Long. total (m)	Peso+10% (kg)
AH-500CN Ø8	836.5	363

ESCALERA 1

Tramo 1	
Ámbito	1.600 m
Espesor	0.20 m
Huella	0.330 m
Contrahuella	0.205 m
Desnivel que salva	4.10 m
Nº de escalones	20
Planta final	PRIMER PISO
Planta inicial	PLANTA BAJA
Peso propio	0.500 t/m2
Peldañoado (Realizado con ladrillo)	0.138 t/m2
Solado	0.091 t/m2
Barandillas	0.031 t/m
Sobrecarga de uso	0.308 t/m2
Hormigón	H-21 , Control Normal
Acero	AH-500 , Control Normal
Rec. geométrico	3.0 cm



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-500CN (kg)
ESCALERA 1-Tramo 1						
1	Ø10	12	564	6768	41.7	
2	Ø10	12	479	5748	35.4	
3	Ø10	12	181	2172	13.4	
4	Ø10	24	359	8616	53.1	
5	Ø10	12	220	2640	16.3	
6	Ø10	12	471	5652	34.8	
7	Ø10	12	612	7344	45.3	
8	Ø8	75	179	13425	53.0	
9	Ø10	2	179	350	2.2	
				Total+10%	324.7	
				Ø8:	58.3	
				Ø10:	266.4	
				Total:	324.7	

Resumen Acero ESCALERA 1	Long. total (m)	Peso+10% (kg)	Total
AH-500CN Ø8	134.3	58	
Ø10	392.9	266	324

UNIVERSIDAD AUTÓNOMA
JUAN MISAEL SARACHO

UNIVERSITARIO:
HERBAS HUANCA
JUANA RAQUEL

ASIGNATURA:
CIV – 502
PROYECTO DE
INGENIERÍA CIVIL II

TRIBUNAL:
Dr. Ing Alberto Benítez
Ing. Armando Almendras
Ing. Carola Sánchez

"DISEÑO ESTRUCTURAL PARA LA
CONSTRUCCIÓN DE UNA ESTACIÓN
DE BOMBEROS PARA EL MUNICIPIO
DE ENTRE RÍOS"

CARACTER:

PLANOS DETALLE DE PILARES Y ESCALERAS

ESCALA:
1/100

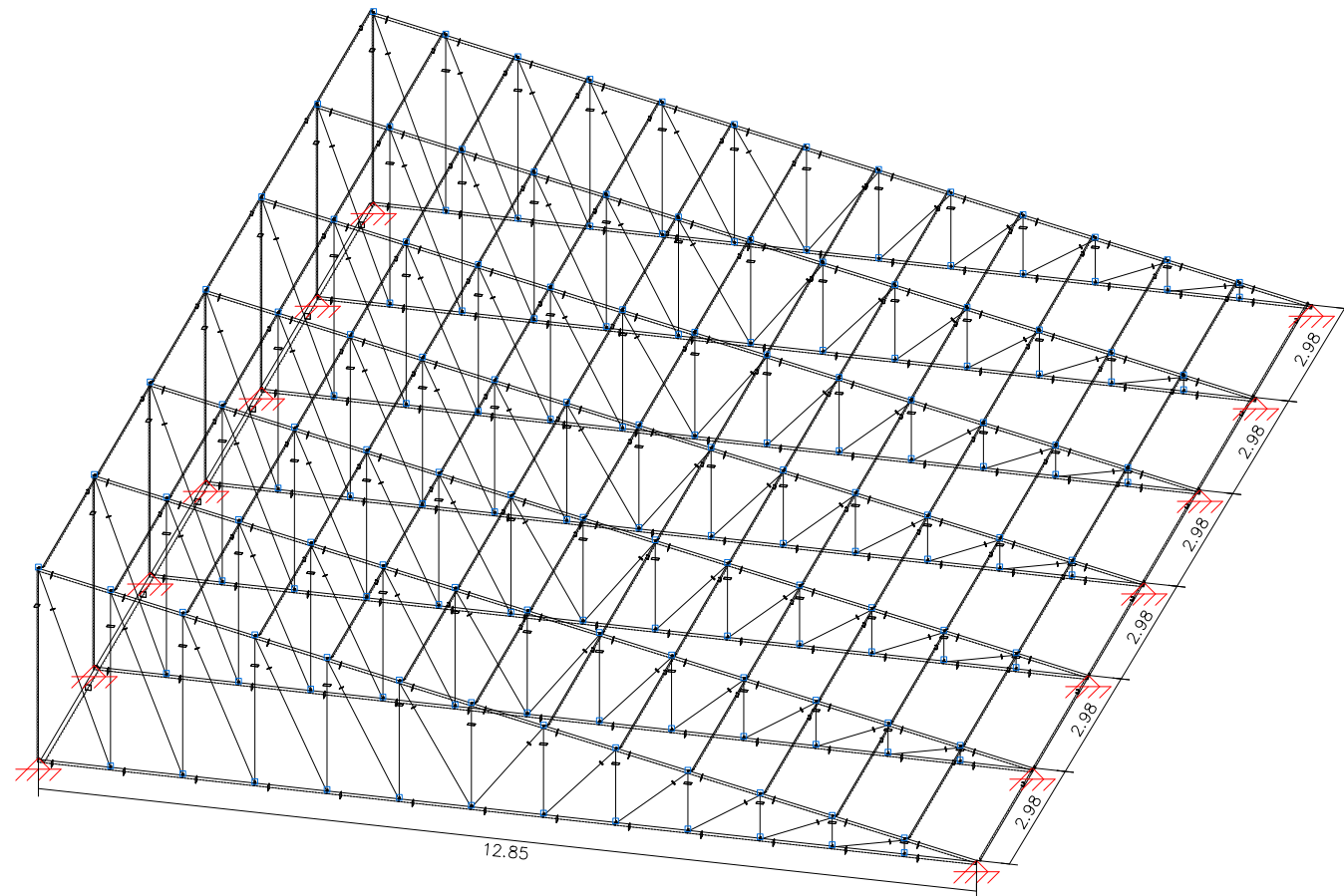
FECHA:
FEBRERO
DE 2021

LÁMINA:
14/15

ESTACION BOMBEROS-ENTRE RIOS: 2D: XZ

ESTACION DE BOMBEROS ENTRE RIOS
ESTACION BOMBEROS-ENTRE RIOS
Norma de acero laminado: ANSI/AISC 360-10 (LRFD)
Norma de acero conformado: AISI S100-2007 (LRFD)
Acero laminado: A36
Acero conformado: ASTM A 36 36 ksi
Escala: 1:100

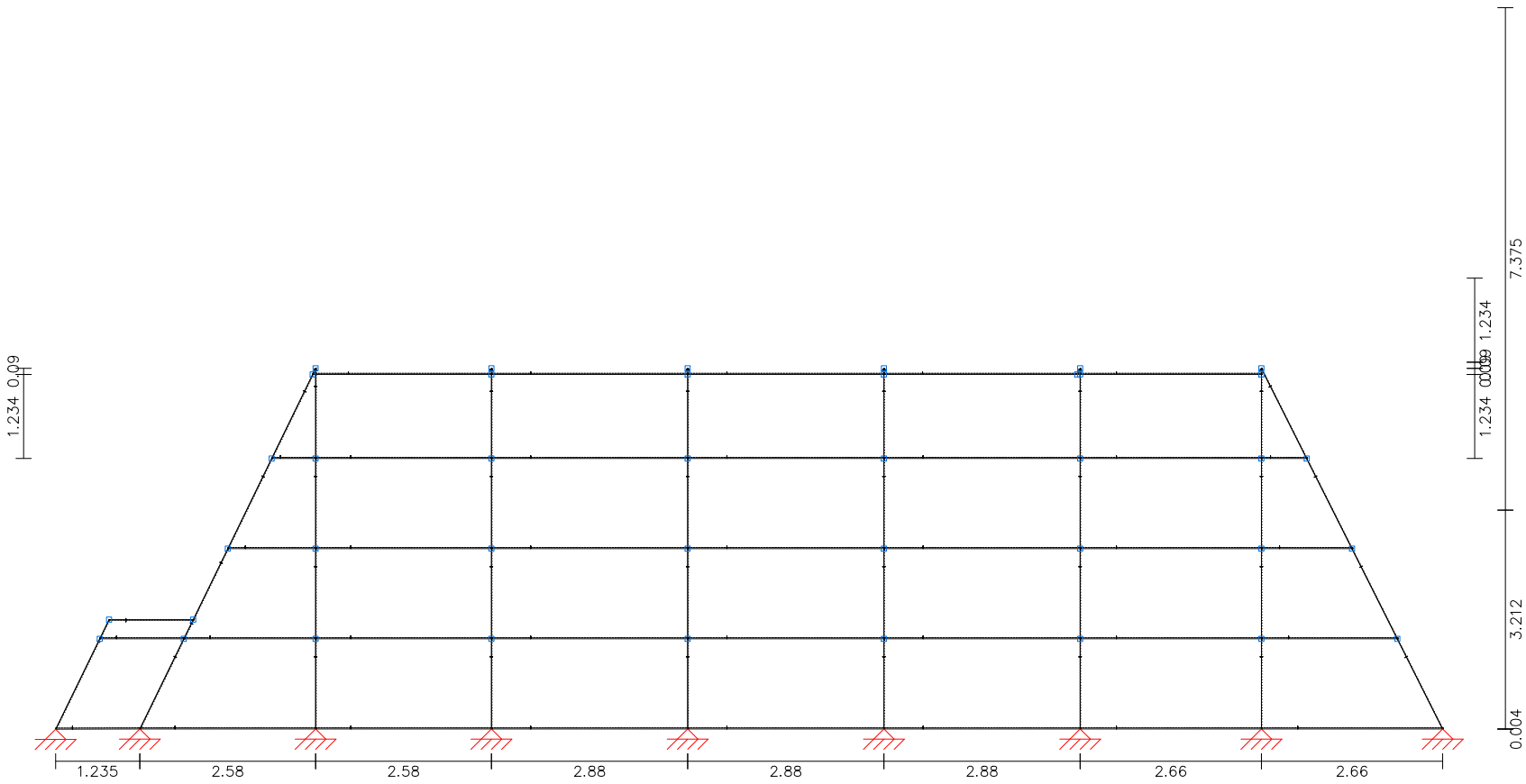
ESTACION BOMBEROS-ENTRE RIOS: 3D



ESTACION DE BOMBEROS ENTRE RIOS: 2D: XZ

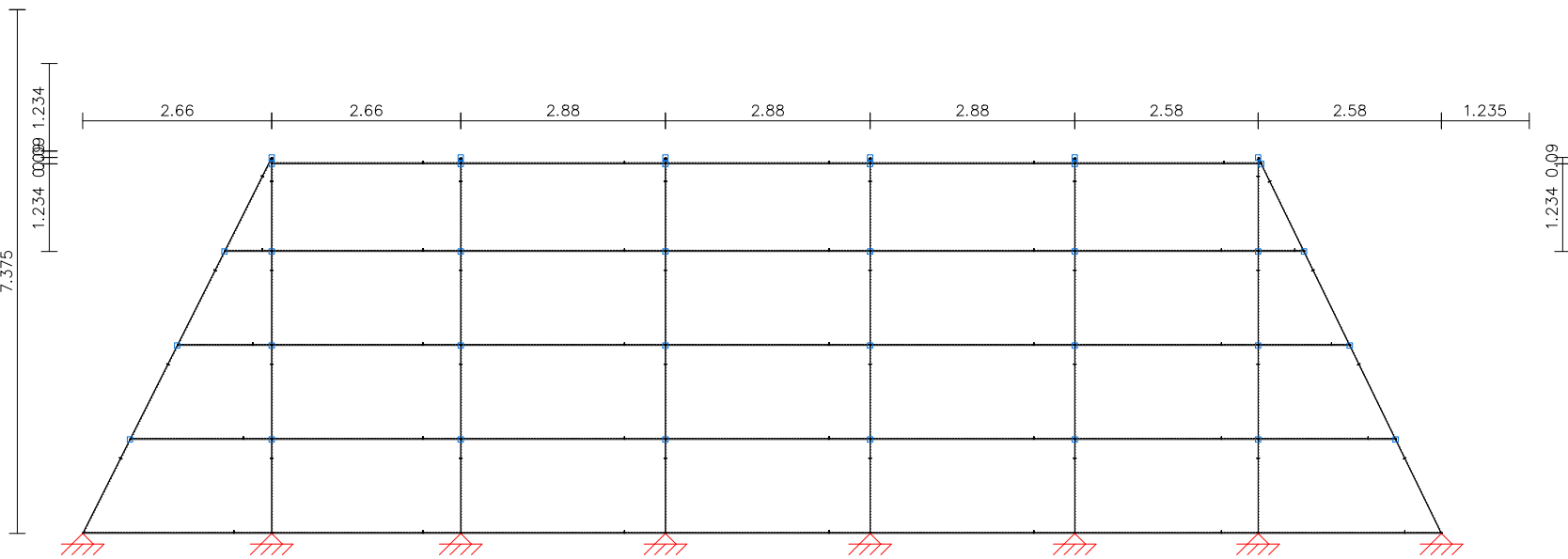
ESTACION DE BOMBEROS ENTRE RIOS
ESTACION DE BOMBEROS ENTRE RIOS
Norma de acero laminado: ANSI/AISC 360-10 (LRFD)
Norma de acero conformado: AISI S100-2007 (LRFD)
Acero laminado: A36
Acero conformado: ASTM A 36 36 ksi
Escala: 1:100

ESTACION DE BOMBEROS ENTRE RIOS: 2D: INCL 1



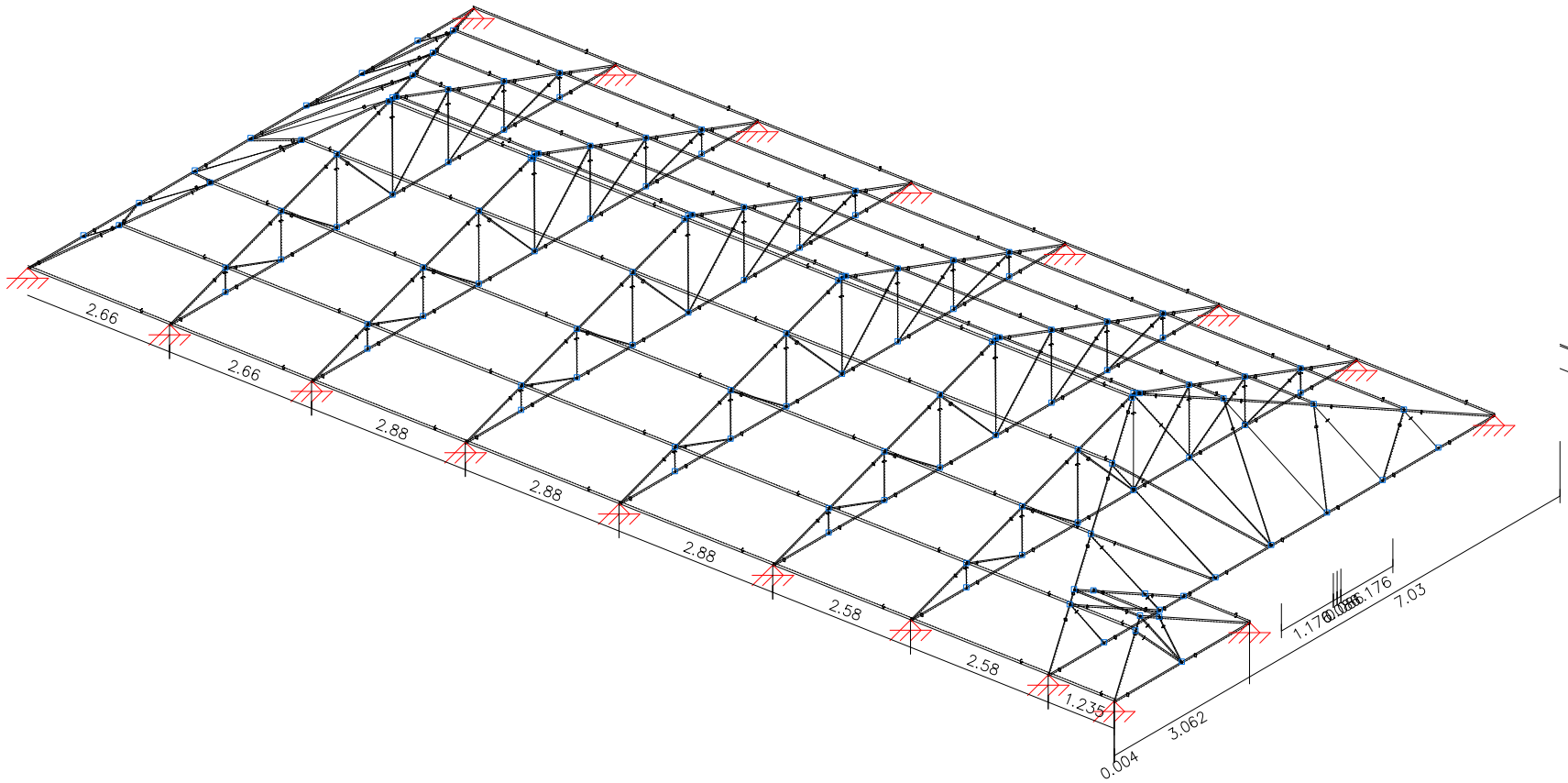
ESTACION DE BOMBEROS ENTRE RIOS: 2D: INCL 2

ESTACION DE BOMBEROS ENTRE RIOS
ESTACION DE BOMBEROS ENTRE RIOS
Norma de acero laminado: ANSI/AISC 360-10 (LRFD)
Norma de acero conformado: AISI S100-2007 (LRFD)
Acero laminado: A36
Acero conformado: ASTM A 36 36 ksi
Escala: 1:100

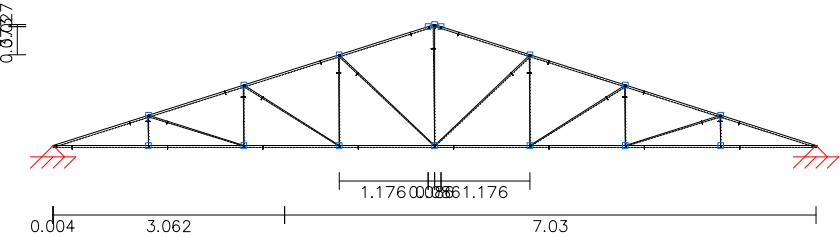


ESTACION DE BOMBEROS ENTRE RIOS: 3D

ESTACION DE BOMBEROS ENTRE RIOS
ESTACION DE BOMBEROS ENTRE RIOS
Norma de acero laminado: ANSI/AISC 360-10 (LRFD)
Norma de acero conformado: AISI S100-2007 (LRFD)
Acero laminado: A36
Acero conformado: ASTM A 36 36 ksi
Escala: 1:100



ESTACION DE BOMBEROS ENTRE RIOS: 2D: 2D1



	UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO	UNIVERSITARIO: HERBAS HUANCA JUANA RAQUEL	ASIGNATURA: CIV – 502 PROYECTO DE INGENIERÍA CIVIL II	TRIBUNAL: V°B° Dr. Ing. Alberto Benitez Ing. Armando Almendras Ing. Carola Sánchez	"DISEÑO ESTRUCTURAL PARA LA CONSTRUCCIÓN DE UNA ESTACIÓN DE BOMBEROS PARA EL MUNICIPIO DE ENTRE RÍOS"	CARACTER: PLANOS DETALLE DE CUBIERTAS	ESCALA: 1/100	FECHA: FEBRERO DE 2021	LÁMINA: 15/15
--	---	---	--	--	--	--	----------------------	----------------------------------	----------------------