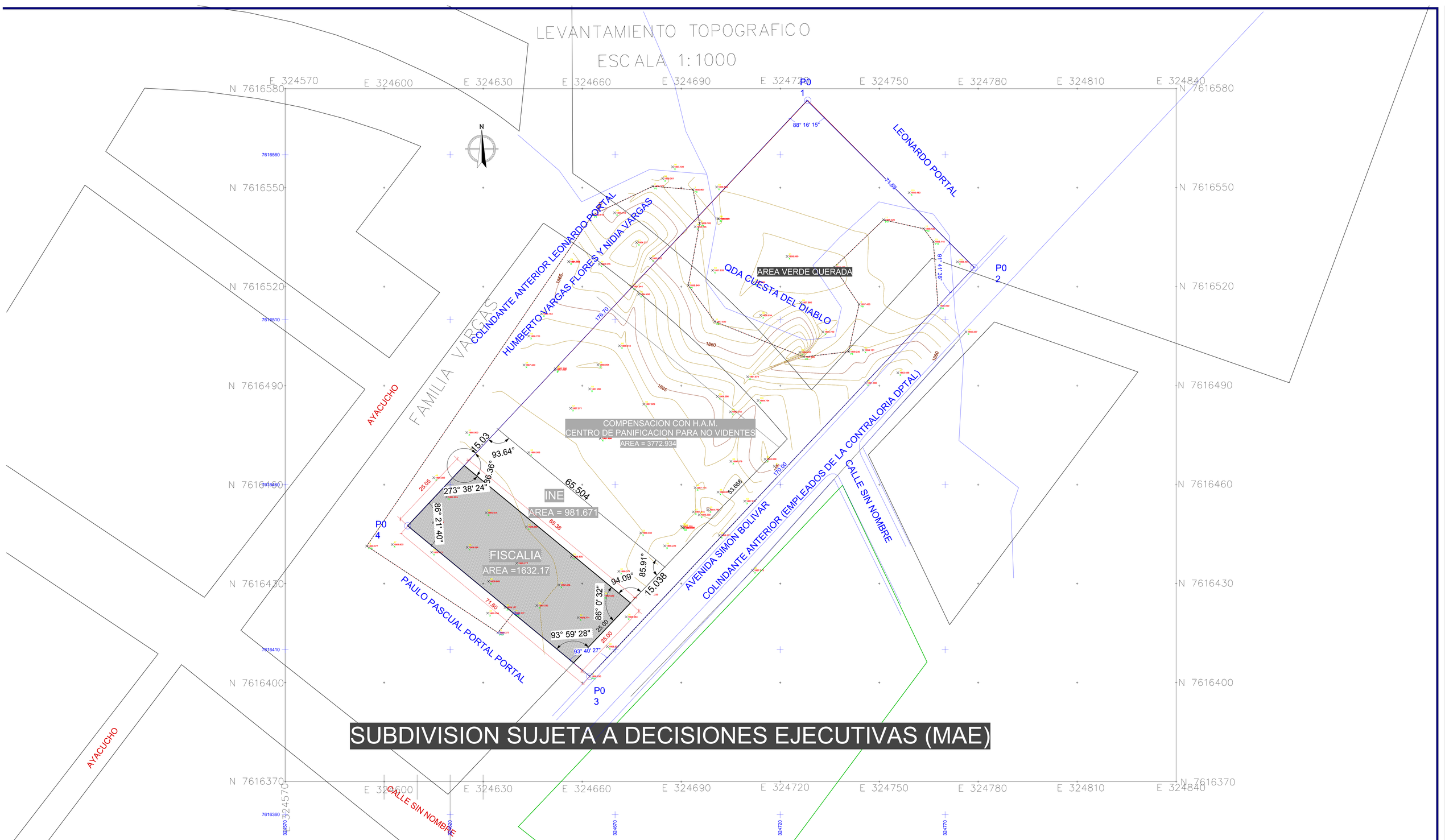
LEVANTAMIENTO TOPOGRAFICO

ESCALA 1:1000



SUBDIVISION SUJETA A DECISIONES EJECUTIVAS (MAE)

SUP. DEL TERRENO	1632.17 M2				
SUP. SUB-SUELO	888.29 m2	SUP. 4 PISO	809.62 m2		
SUP. PLANTA BAJA	908.71 m2	SUP. 5 PISO	809.62 m2		
SUP. 1 PISO	809.62 m2	SUP. 6 PISO	809.62 m2		
SUP. 2 PISO	809.62 m2	SUP. 7 PISO	809.62 m2		
SUP. 3 PISO	809.62 m2	SUP. TOTAL CONST.	7474.86 m2		

NOMBRE DEL PROYECTO: CONSTRUCCION EDIFICIO DE LA CASA FISCAL DE TARIJA

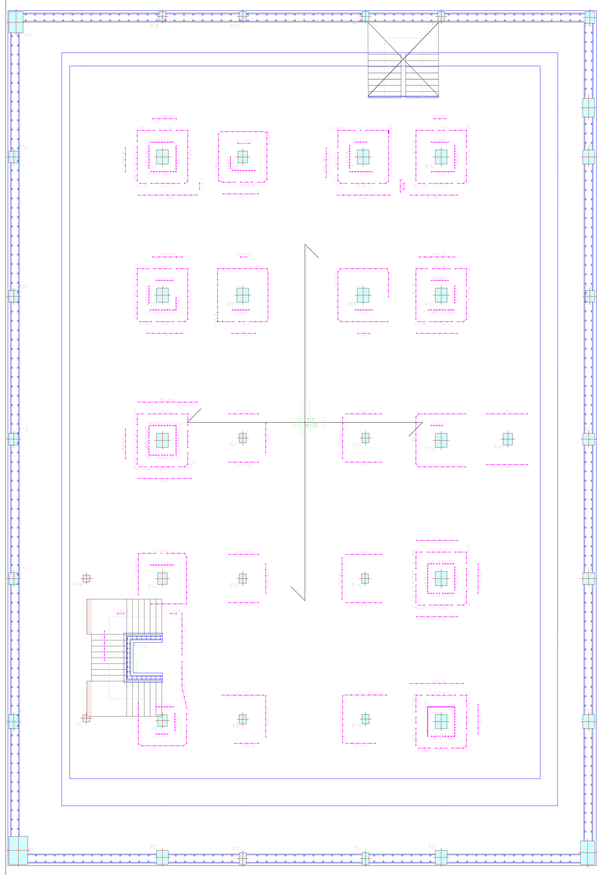
SUPERFICIE:

UBICACION	TARIJA
ESCALA:	INDICADAS
FECHA:	ABRIL 2015

PLANO: LEVANTAMIENTO TOPOGRAFICO

LAMINA: 02

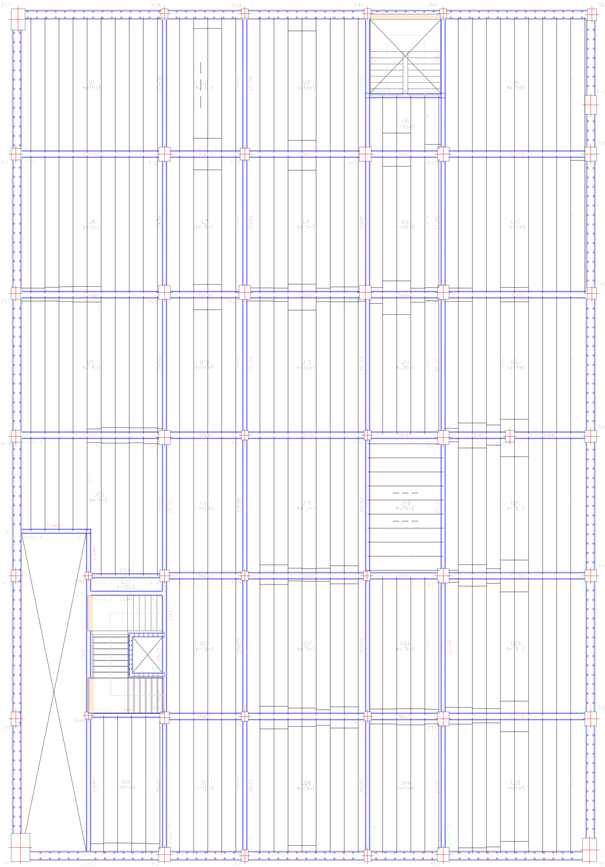
REPLANTEO
FUNDACIONES



Cimentación
Replanteo
Hormigón: f'c=21 , Control Normal
Mr=400 , Control Normal

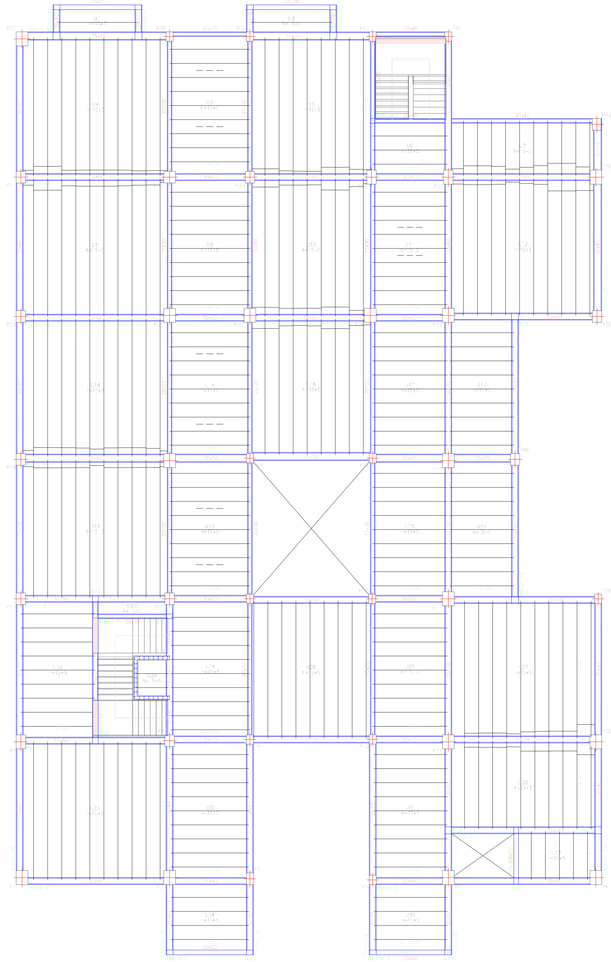
Armadura base en losa de cimentación
Parrilla 2 :
Superior: #16 cada 30 cm Inferior: #16 cada 30 cm
No detallado en planos ni incluido en la medición.
Escala: 1:100

REPLANTEO
PLANTA BAJA



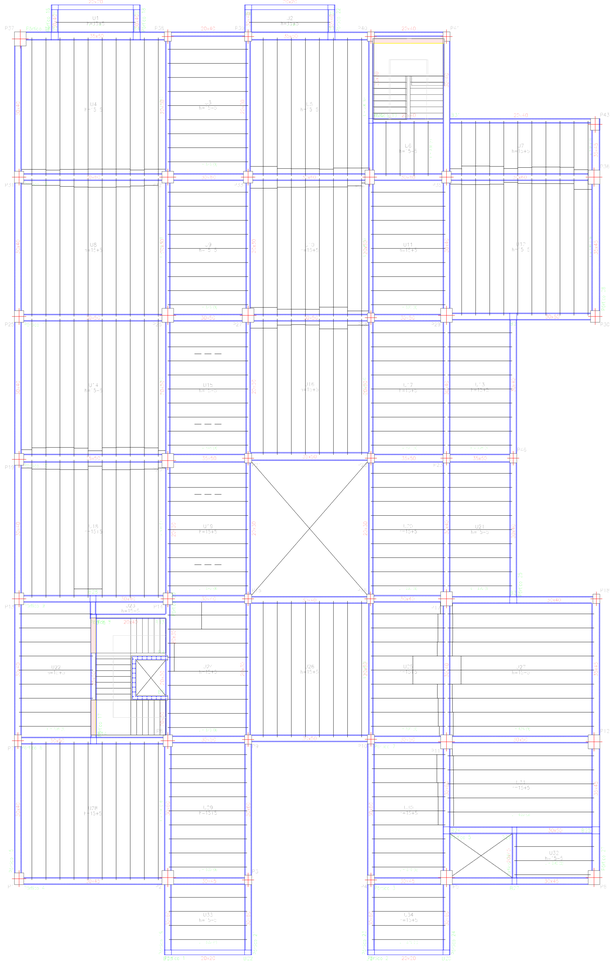
Planta Baja
Replanteo
Hormigón: f'c=21 , Control Normal
Mr=400 , Control Normal
Mn Momento flector de cálculo por metro de ancho (m x kg/m)
Vc Cortante de cálculo por metro de ancho (kg/m)
Escala: 1:100

REPLANTEO
PRIMER PISO



Primer Piso
Replanteo
Hormigón: f'c=21 , Control Normal
Mr=400 , Control Normal
Mn Momento flector de cálculo por metro de ancho (m x kg/m)
Vc Cortante de cálculo por metro de ancho (kg/m)
Escala: 1:100

REPLANTEO
SEGUNDO PISO



Segundo Piso
Replanteo
Hormigón: f'c=21 , Control Normal
Mr=400 , Control Normal
Mn Momento flector de cálculo por metro de ancho (m x kg/m)
Vc Cortante de cálculo por metro de ancho (kg/m)
Escala: 1:100

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: REPLANTEO Y FUNDACIONES

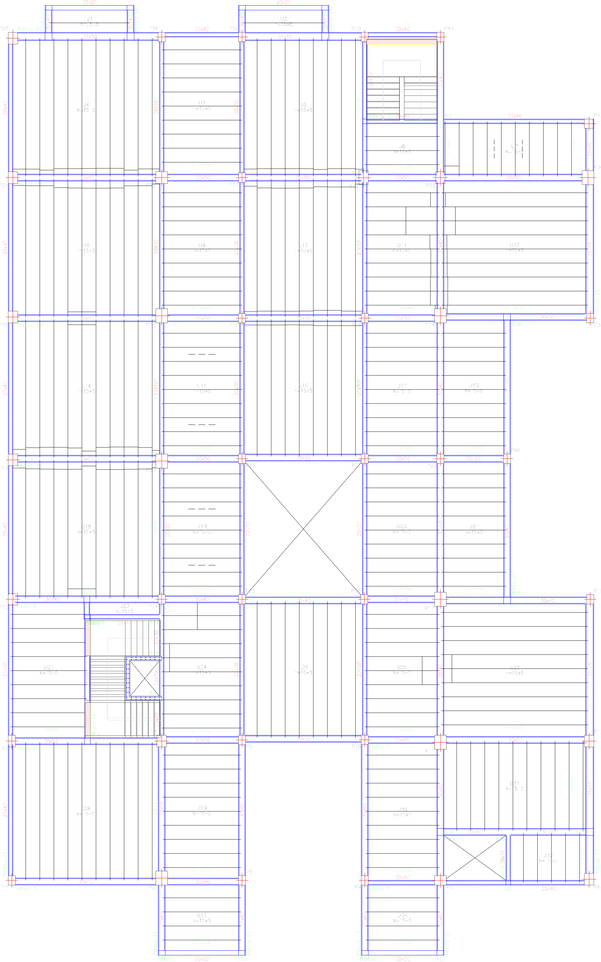
ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

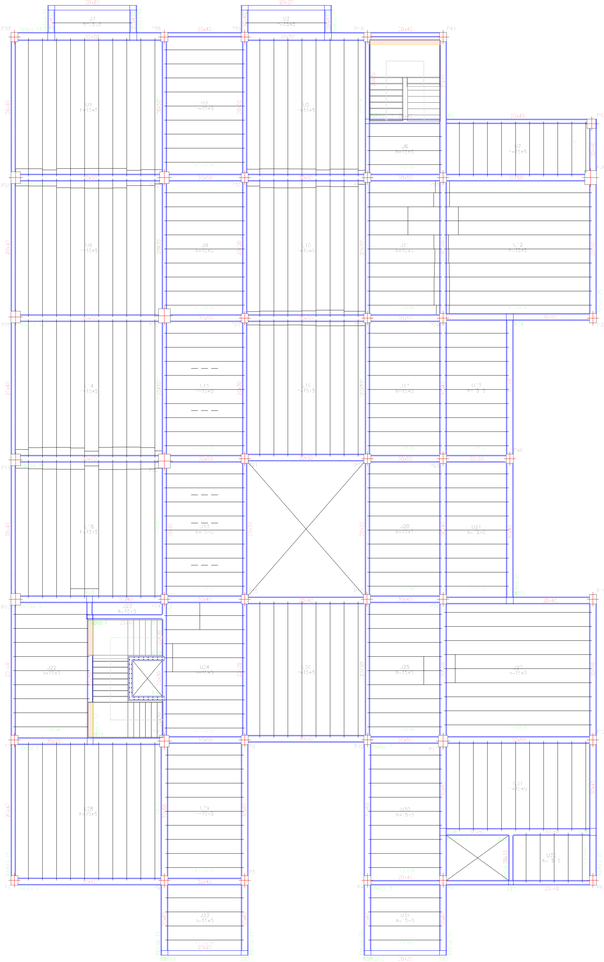
Lámina 1

REPLANTEO
TERCER PISO



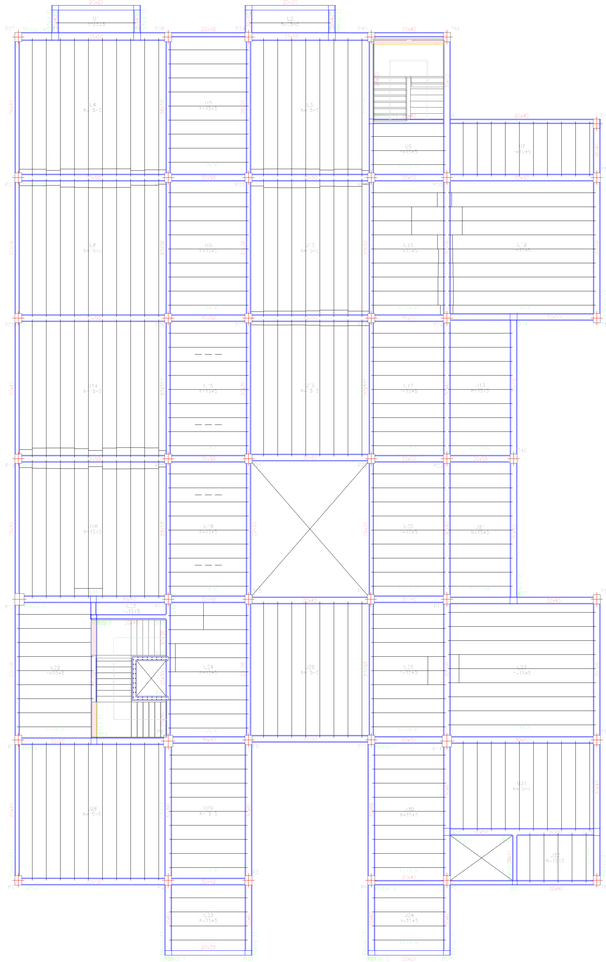
Tercer Piso
Replanteo
Hormigón: f'c=21 ... Control Normal
Acero=420 ... Control Normal
Mf: Momento flector se calcula por metro de ancho
f'c = kg/cm2
V: Cortante se calcula por metro de ancho (kg/m)
Escala: 1:100

REPLANTEO
CUARTO PISO



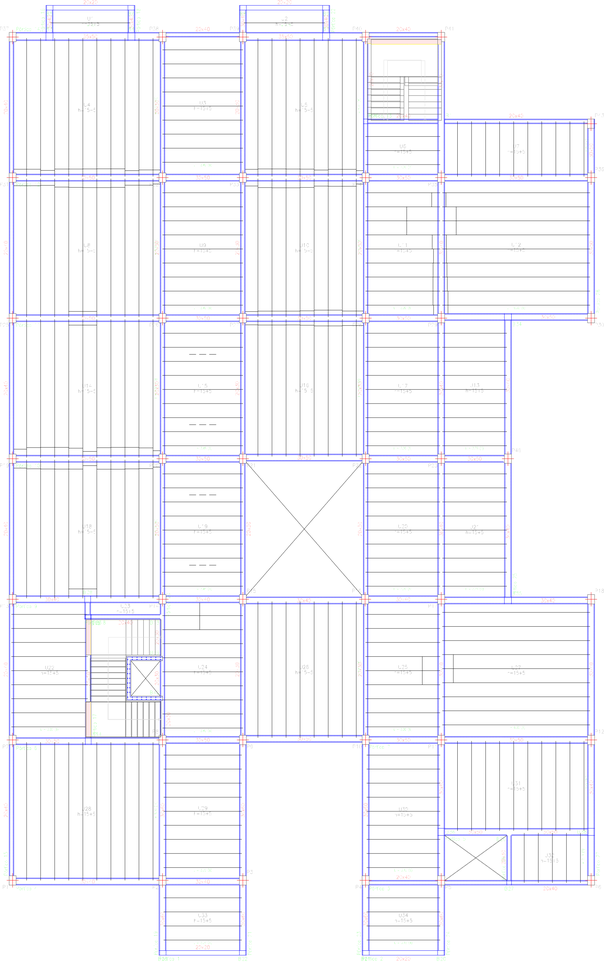
Cuarto Piso
Replanteo
Hormigón: f'c=21 ... Control Normal
Acero=420 ... Control Normal
Mf: Momento flector se calcula por metro de ancho
f'c = kg/cm2
V: Cortante se calcula por metro de ancho (kg/m)
Escala: 1:100

REPLANTEO
QUINTO PISO



Quinto Piso
Replanteo
Hormigón: f'c=21 ... Control Normal
Acero=420 ... Control Normal
Mf: Momento flector se calcula por metro de ancho
f'c = kg/cm2
V: Cortante se calcula por metro de ancho (kg/m)
Escala: 1:100

REPLANTEO
SEXTO PISO



Sexto Piso
Replanteo
Hormigón: f'c=21 ... Control Normal
Acero=420 ... Control Normal
Mf: Momento flector se calcula por metro de ancho
f'c = kg/cm2
V: Cortante se calcula por metro de ancho (kg/m)
Escala: 1:100

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PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: REPLANTEO Y FUNDACIONES

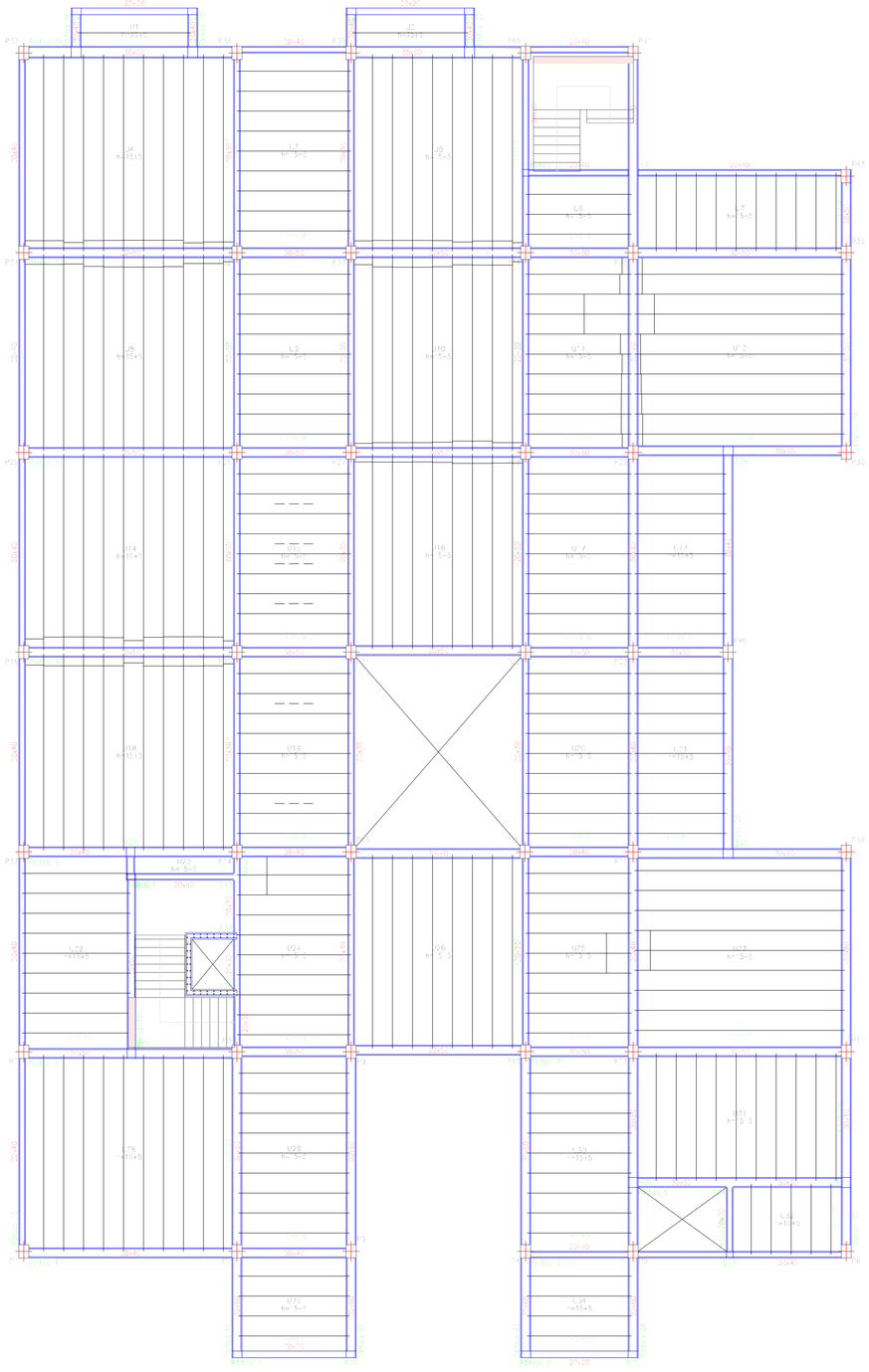
ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

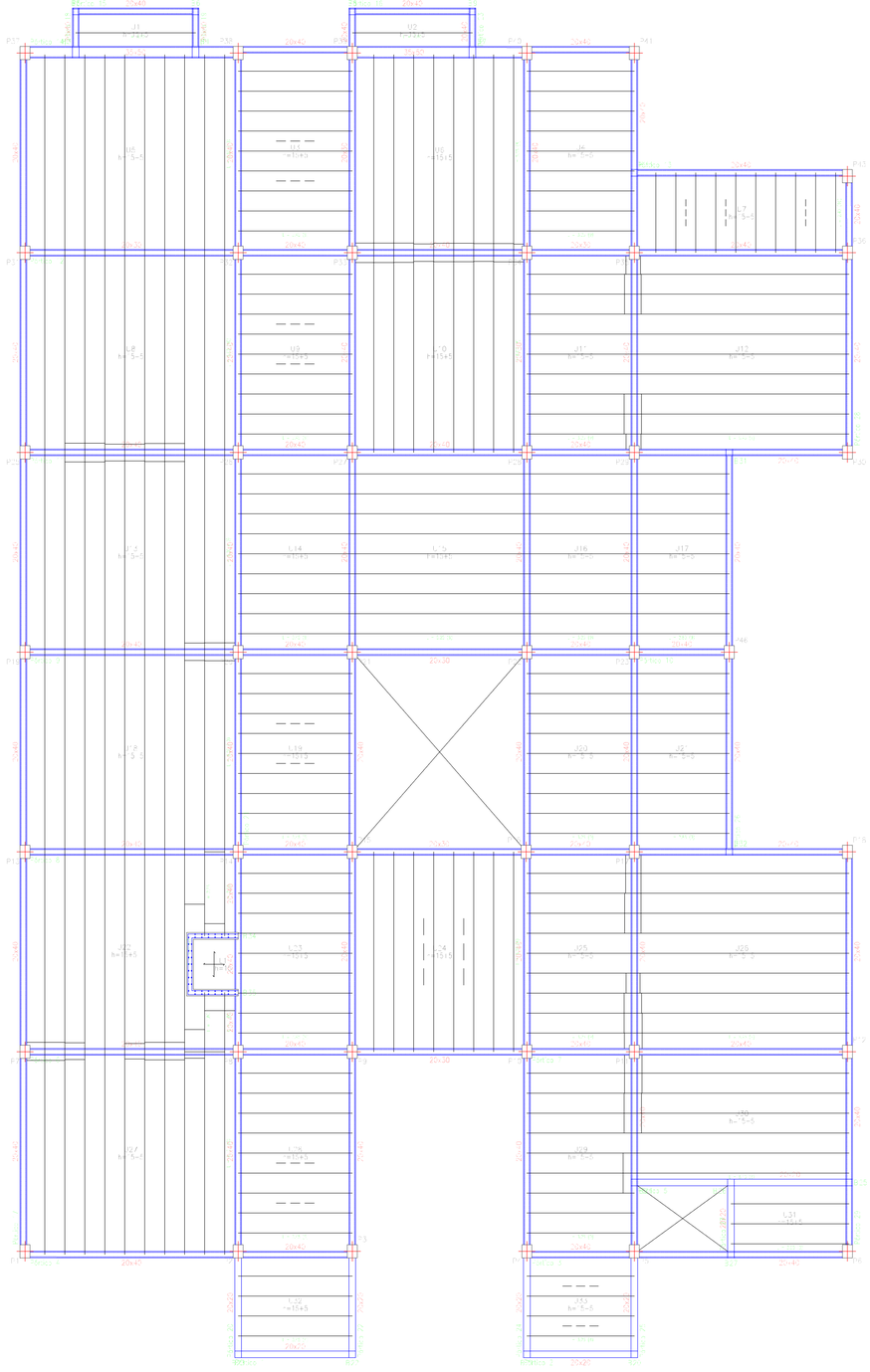
Lámina 2

REPLANTEO
SEPTIMO PISO



Septimo Piso
Replanteo
Hormigón: H-21 , Control Normal
AH-400 , Control Normal
M: Momento flector de cálculo por metro de ancho (m x kp/m)
V: Cortante de cálculo por metro de ancho (kp/m)
Escala: 1:100

REPLANTEO
AZOTEA



Azotea
Replanteo
Hormigón: H-21 , Control Normal
AH-400 , Control Normal
M: Momento flector de cálculo por metro de ancho (m x kp/m)
V: Cortante de cálculo por metro de ancho (kp/m)
Escala: 1:100

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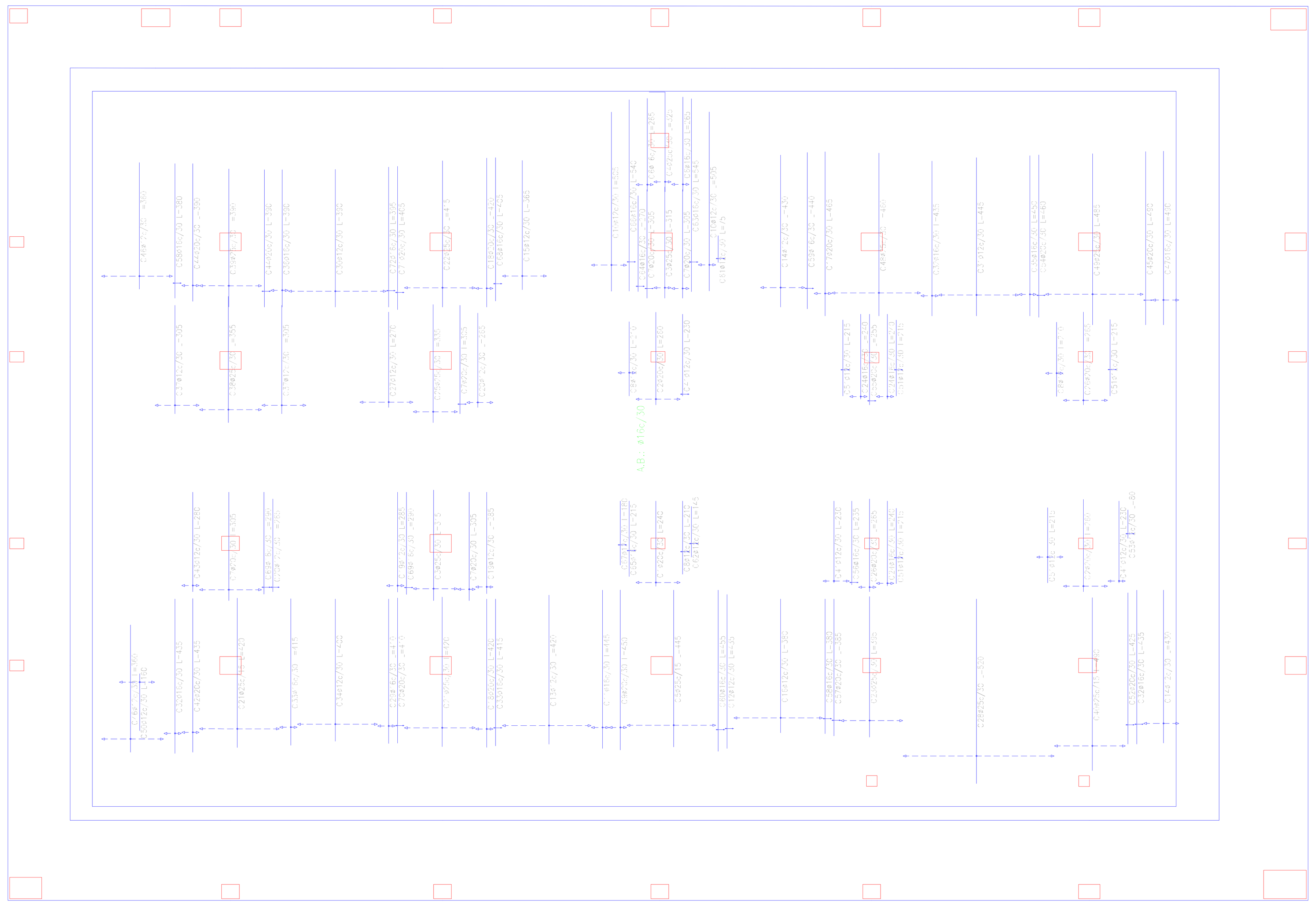
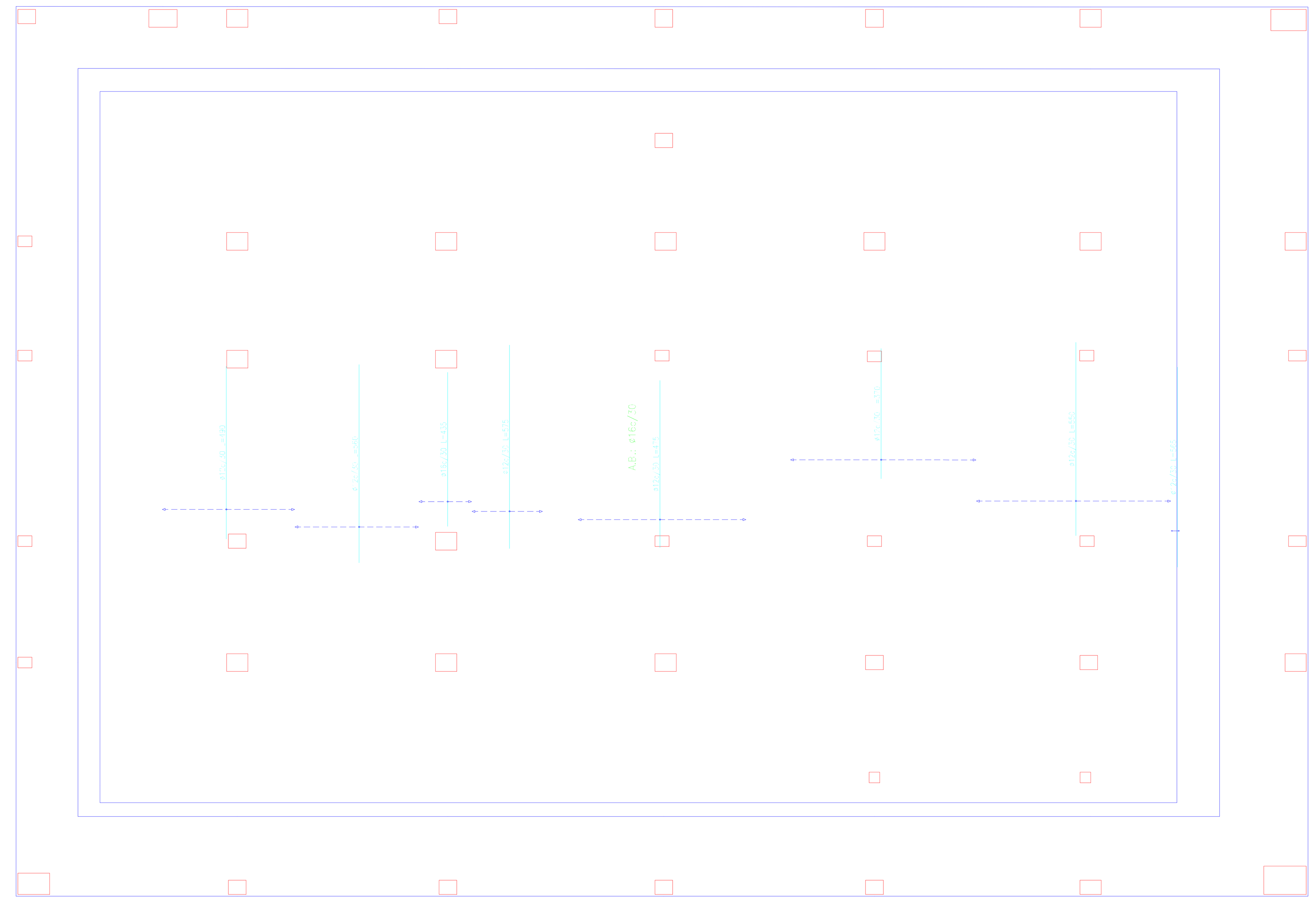
REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA:	ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II		Lámina
REPLANTEO Y FUNDACIONES	FECHA: DICIEMBRE-2019	ESCALA: INDICADA	3

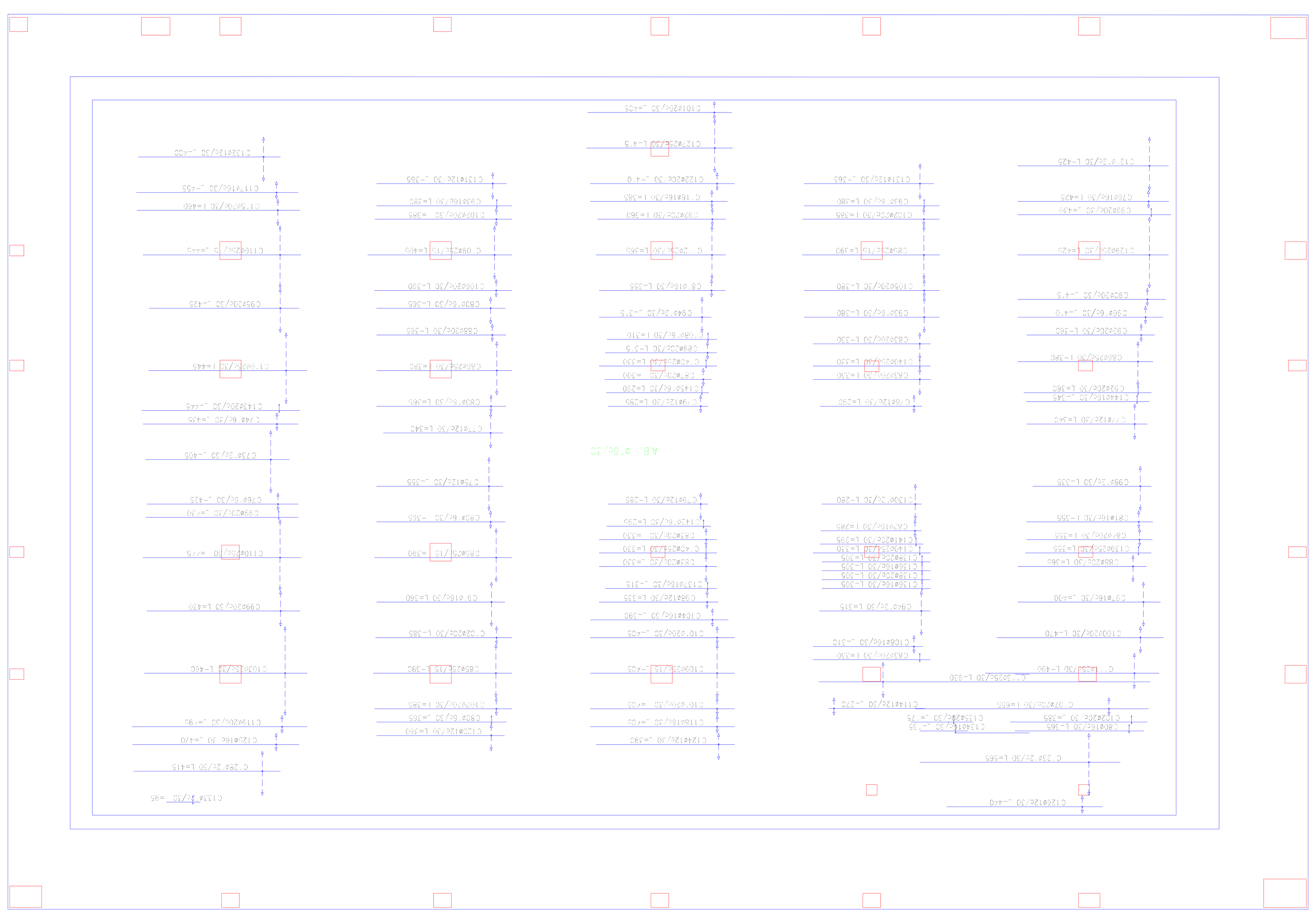
LOSA DE CIMENTACION ARMADURA LONGITUDINAL Y TRANSVERSAL



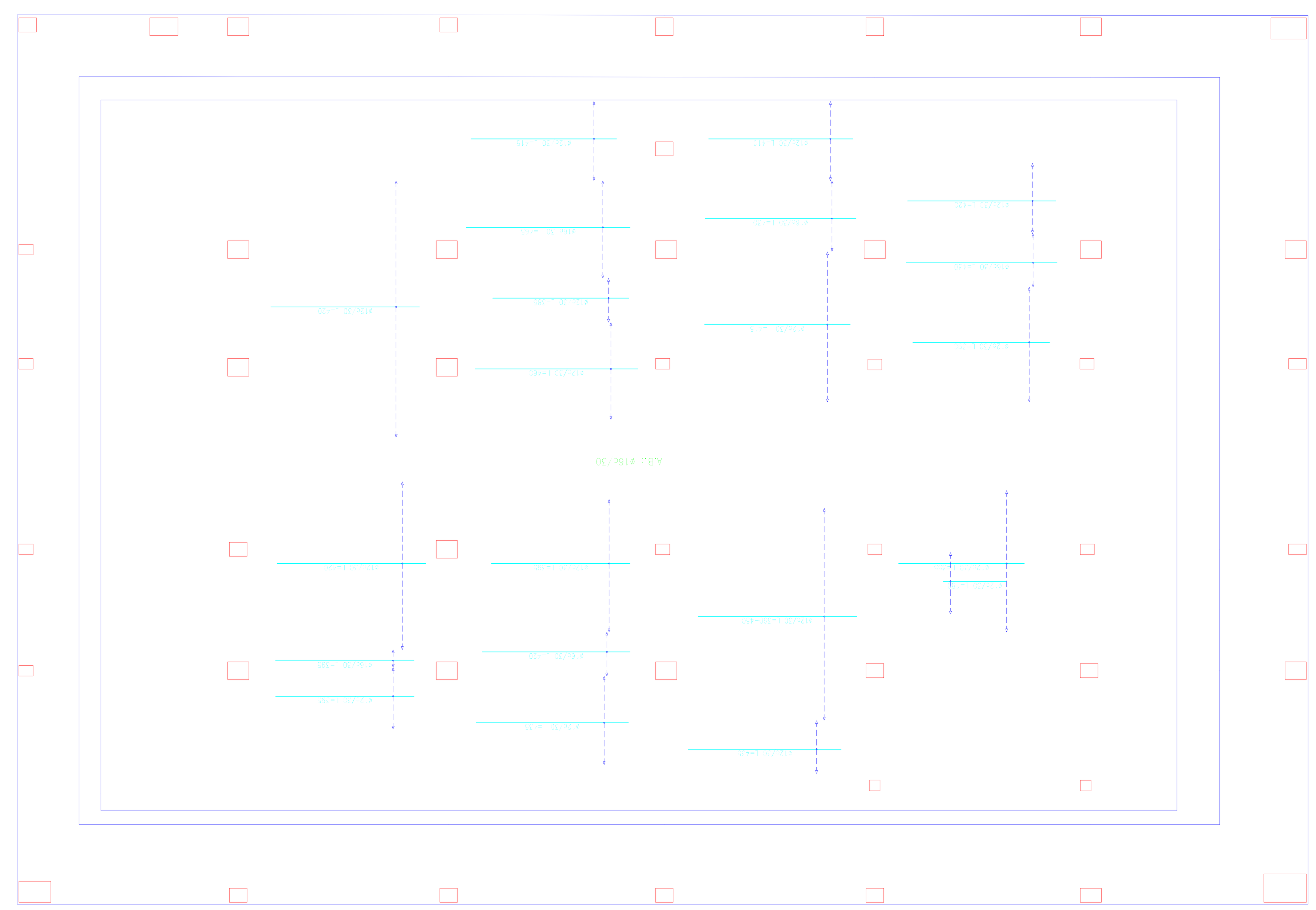
Cimentación
Armadura longitudinal inferior
Hormigón: H-21 , Control Normal
AH-400 , Control Normal
Escala: 1:100



Cimentación
Armadura longitudinal superior
Hormigón: H-21 , Control Normal
Aceros en cimentación: AH-400 , Control Normal
Escala: 1:100



Cimentación
Armadura transversal inferior
Hormigón: H-21 , Control Normal
AH-400 , Control Normal
Escala: 1:100



Cimentación
Armadura transversal superior
Hormigón: H-21 , Control Normal
Aceros en cimentación: AH-400 , Control Normal
Escala: 1:100

Resumen Acero Cimentación Armadura transversal inferior		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø12	311.4	304	
	ø16	218.8	380	
	ø20	299.3	812	
	ø25	535.4	2269	3765

Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Armadura longitudinal inferior	1	ø20	5	240	1200	29.6
	2	ø20	10	260	2600	64.1
	3	ø25	7	315	2205	85.0
	4	ø25	2	325	650	25.0
	5	ø25	17	445	7565	291.5
	6	ø16	4	265	1060	16.7
	7	ø20	12	305	3660	90.3
	8	ø12	5	210	1050	9.3
	9	ø20	2	450	900	22.2
	10	ø12	6	505	3030	26.9
	11	ø16	2	445	890	14.0
	12	ø12	1	435	435	3.9
	13	ø12	9	420	3780	33.6
	14	ø12	9	430	3870	34.4
	15	ø12	5	365	1825	16.2
	16	ø12	9	380	3420	30.4
	17	ø20	2	465	930	22.9
	18	ø20	4	420	1680	41.4
	19	ø12	4	285	1140	10.1
	20	ø12	4	265	1060	9.4
	21	ø25	22	420	9240	356.1
	22	ø25	7	415	2905	111.9
	23	ø25	6	395	2370	91.3
	24	ø16	6	240	1440	22.7
	25	ø25	5	335	1675	64.5
	26	ø20	7	265	1855	45.7
	27	ø12	5	270	1350	12.0
	28	ø25	15	520	7800	300.6
	29	ø16	2	410	820	12.9
	30	ø12	10	390	3900	34.6
	31	ø12	8	445	3560	31.6
	32	ø16	5	435	2175	34.3
	33	ø16	3	415	1245	19.7
	34	ø12	8	400	3200	28.4
	35	ø16	2	450	900	14.2
	36	ø16	2	390	780	12.3
	37	ø12	10	305	3050	27.1
	38	ø25	6	355	2130	82.1
	39	ø25	6	390	2340	90.2
	40	ø25	14	490	6860	264.3
	41	ø12	6	230	1380	12.3
	42	ø20	2	435	870	21.5
	43	ø12	2	280	560	5.0
	44	ø20	3	390	1170	28.9
	45	ø20	1	490	490	12.1
	46	ø12	13	360	4680	41.6
	47	ø16	3	490	1470	23.2
	48	ø25	9	460	4140	159.5
	49	ø25	10	485	4850	186.9
	50	ø12	4	160	640	5.7
	51	ø12	7	215	1505	13.4
	52	ø20	1	425	425	10.5
	53	ø12	1	80	80	0.7
	54	ø20	1	460	460	11.3
	55	ø20	1	255	255	6.3
	56	ø16	1	235	235	3.7
	57	ø20	1	385	385	9.5
	58	ø16	2	380	760	12.0
	59	ø16	1	440	440	6.9
	60	ø16	1	455	455	7.2
	61	ø12	1	75	75	0.7
	62	ø12	1	145	145	1.3
	63	ø16	1	545	545	8.6
	64	ø16	1	270	270	4.3
	65	ø16	1	215	215	3.4
	66	ø16	1	540	540	8.5
	67	ø12	1	180	180	1.6
	68	ø16	1	405	405	6.4
	69	ø16	2	290	580	9.2
	70	ø20	1	410	410	10.1
	71	ø20	1	405	405	10.0
	72	ø16	1	395	395	6.2
					Total+10%:	3500.1
Armadura transversal inferior	73	ø12	6	405	2430	21.6
	74	ø16	2	435	870	13.7
	75	ø12	5	355	1775	15.8
	76	ø16	4	425	1700	26.8
	77	ø12	8	340	2720	24.1
	78	ø12	2	290	580	5.1
	79	ø12	5	285	1425	12.7
	80	ø16	9	365	3285	51.8
	81	ø16	4	355	1420	22.4
	82	ø16	2	285	570	9.0
	83	ø20	12	330	3960	97.7
	84	ø20	2	355	710	17.5
	85	ø25	30	390	11700	450.8
	86	ø25	10	380	3800	146.4
	87	ø20	2	300	600	14.8
	88	ø20	5	365	1825	45.0
	89	ø20	2	315	630	15.5
	90	ø20	2	415	830	20.5
	91	ø16	5	360	1800	28.4
	92	ø20	5	360	1800	44.4
	93	ø16	6	380	2280	36.0
	94	ø12	9	315	2835	25.2
	95	ø20	5	425	2125	52.4
	96	ø16	2	410	820	12.9
	97	ø16	5	400	2000	31.6
	98	ø12	7	335	2345	20.8
	99	ø20	6	430	2580	63.6
	100	ø20	3	470	1410	34.8
	101	ø20	6	405	2430	59.9
	102	ø20	9	385	3465	85.5
	103	ø25	9	460	4140	159.5
	104	ø16	2	390	780	12.3
	105	ø20	2	380	760	18.7
	106	ø20	2	390	780	19.2
	107	ø20	2	655	1310	32.3
	108	ø16	3	310	930	14.7
	109	ø25	20	405	8100	312.1
	110	ø25	26	445	11570	445.8
	111	ø25	4	490	1960	75.5
	112	ø25	5	365	1825	70.3
	113	ø25	4	930	3720	143.3
	114	ø12	2	270	540	4.8
	115	ø20	3	460	1380	34.0
	116	ø16	2	385	770	12.2
	117	ø16	2	455	910	14.4
	118	ø16	2	405	810	12.8
	119	ø20	2	495	990	24.4
	120	ø12	3	360	1080	9.6
	121	ø12	5	425	2125	18.9
	122	ø20	2	410	820	20.2
	123	ø12	6	565	3390	30.1
	124	ø12	3	390	1170	10.4
	125	ø16	2	470	940	14.8
	126	ø12	2	440	880	7.8
	127	ø25	5	415	2075	80.0
	128	ø12	5	415	2075	18.4
	129	ø25	7	425	2975	114.6
	130	ø12	4	280	1120	9.9
	131	ø12	7	365	2555	22.7
	132	ø12	5	400	2000	17.8
	133	ø12	1	95	95	0.8
	134	ø16	1	135	135	2.1
	135	ø20	1	175	175	4.3
	136	ø16	2	305	610	9.6
	137	ø16	1	315	315	5.0
	138	ø20	2	305	610	15.0
	139	ø25	1	355	355	13.7
	140	ø25	4	330	1320	50.9
	141	ø20	1	295	295	7.3
	142	ø16	1	295	295	4.7
	143	ø20	1	445	445	11.0
	144	ø16	1	345	345	5.4
	145	ø16	1	290	290	4.6
					Total+10%:	3764.9
					ø12:	733.4
					ø16:	650.8
					ø20:	1291.8
					ø25:	4589.0
					Total:	7265.0

Resumen Acero Cimentación Armadura longitudinal inferior		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø12	439.2	429	
	ø16	156.2	271	
	ø20	177.0	480	
	ø25	547.3	2320	3500

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PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

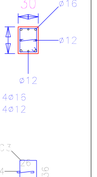
TITULO DE LAMINA: LOSA DE CIMENTACION-ARMADURA LONGITUDINAL Y TRANSVERSAL

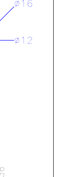
ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

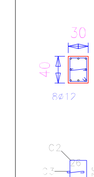
FECHA: DICIEMBRE-2019

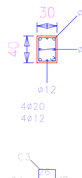
ESCALA: INDICADA

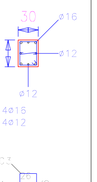
Lámina 4

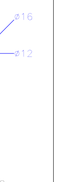


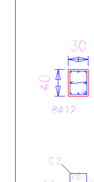


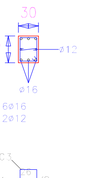












DESPIECE DE COLUMNAS

Resumen Acero Forjados 1 a 9 Pilares		Long. total (m)	Peso+10% (kg)	Total
AH–400CN	ø6	12956.8	3163	
	ø8	10495.2	4556	
	ø10	850.3	577	
	ø12	3615.9	3531	
	ø16	4368.7	7585	
	ø20	2643.7	7172	
	ø25	4384.6	18585	45169

Cuadro de pilares
Hormigón: H–21 , Control Normal
Acero: AH–400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

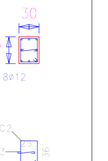
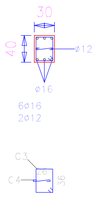
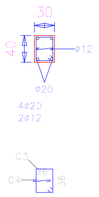
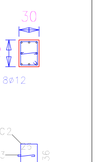
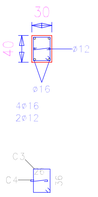
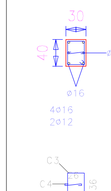
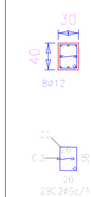
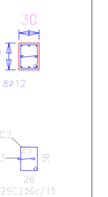
TITULO DE LAMINA: DESPIECE DE COLUMNAS

ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 5

P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P25	P26	P27	P28	P29	P30	
															Azotea
																Septimo Piso
															Sexto Piso
																Quinto Piso

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

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REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: DESPIECE DE COLUMNAS

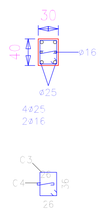
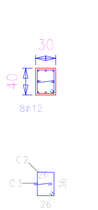
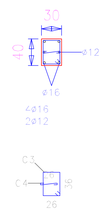
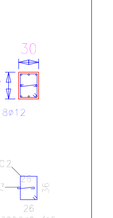
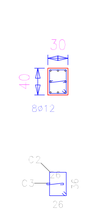
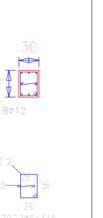
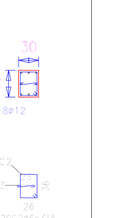
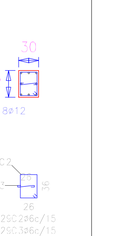
ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 6

DESPIECE DE COLUMNAS

P31	P32	P33	P34	P35	P36	P37	P38	P39	P40	P41	P43	P46	
													Azotea
													Septimo Piso
													Sexto Piso
													Quinto Piso

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
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REALIZADO POR: GERARDO PORTAL LLANOS

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ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 7

DESPIECE DE COLUMNAS

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
Cuarto Piso												
Tercer Piso												
Segundo Piso												

Resumen Acero Forjados 1 a 9 Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø6	12956.8	3163	
	ø8	10495.2	4556	
	ø10	850.3	577	
	ø12	3615.9	3531	
	ø16	4368.7	7585	
	ø20	2643.7	7172	
	ø25	4384.6	18585	45169

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

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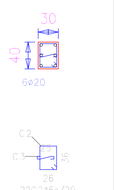
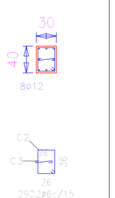
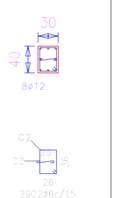
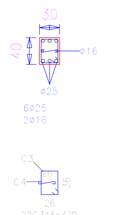
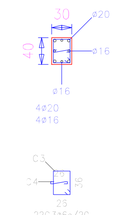
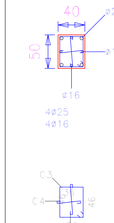
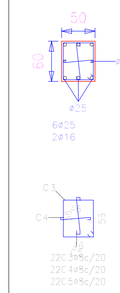
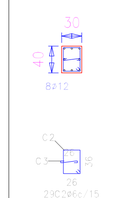
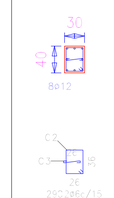
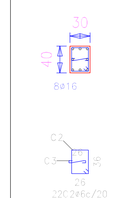
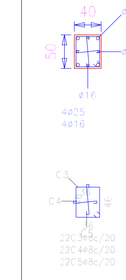
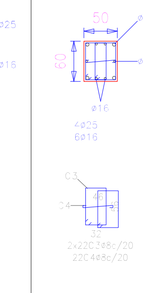
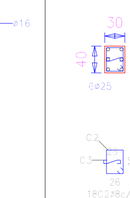
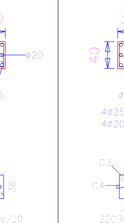
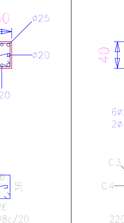
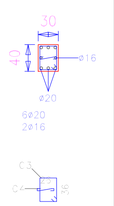
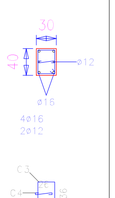
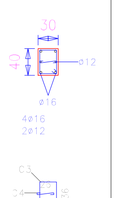
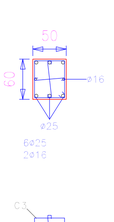
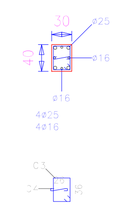
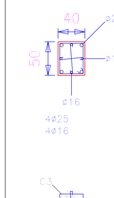
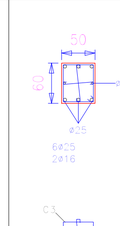
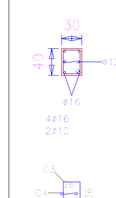
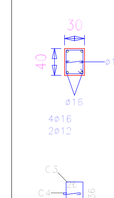
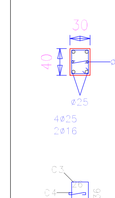
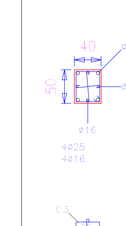
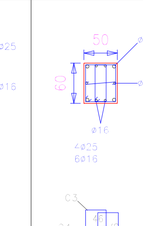
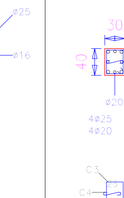
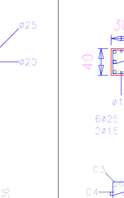
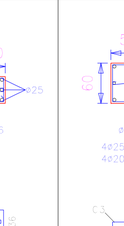
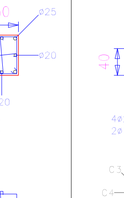
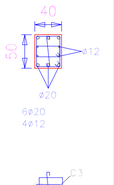
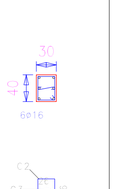
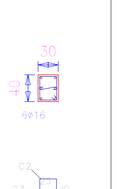
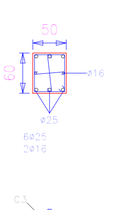
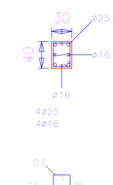
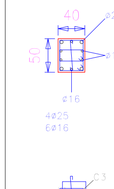
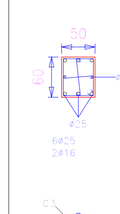
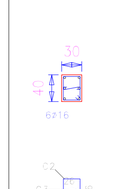
Lámina 8

DESPIECE DE COLUMNAS

P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P25	P26	P27	P28	P29	P30	
																Cuarto Piso
																Tercer Piso
																Segundo Piso

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: DESPIECE DE COLUMNAS

ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 9

DESPIECE DE COLUMNAS

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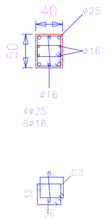
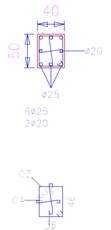
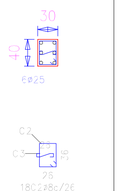
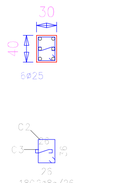
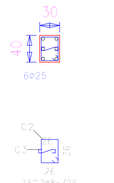
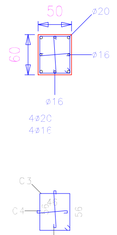
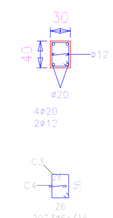
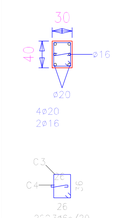
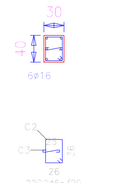
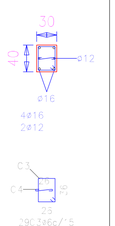
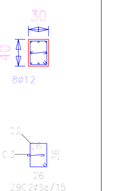
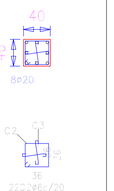
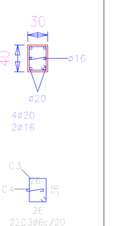
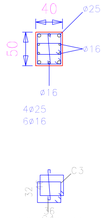
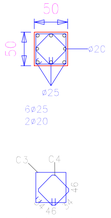
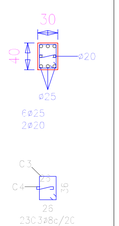
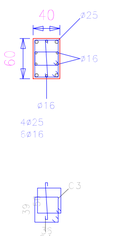
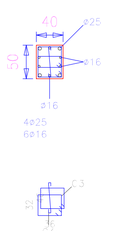
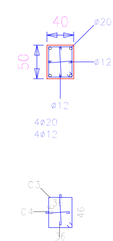
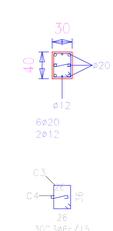
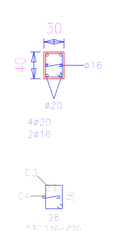
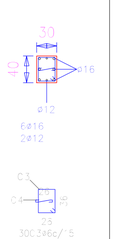
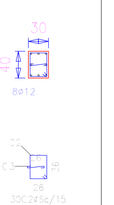
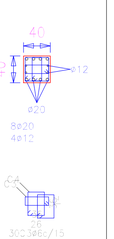
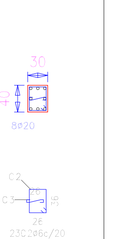
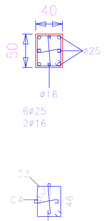
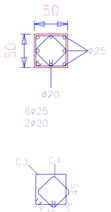
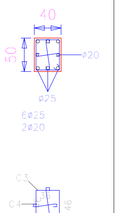
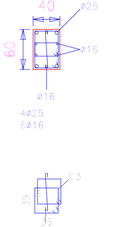
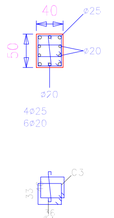
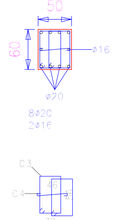
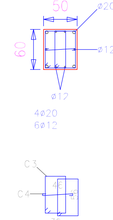
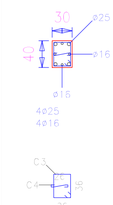
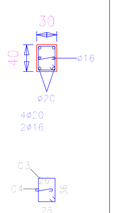
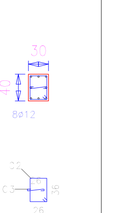
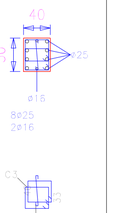
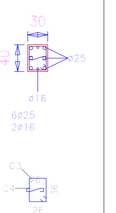
													Cuarto Piso
													Tercer Piso
													Segundo Piso

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA:	ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II		Lámina
DESPIECE DE COLUMNAS	FECHA: DICIEMBRE-2019	ESCALA: INDICADA	10

DESPIECE DE COLUMNAS

P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13
8ø16 2ø12 2x30C3ø6c/15 30C4ø6c/15	8ø25 2ø20 2x22C3ø8c/20 22C4ø8c/20	4ø25 4ø16 2E 22C3ø8c/20 22C4ø8c/20	6ø25 2ø20 2S 22C3ø8c/2C 22C4ø8c/2C	8ø25 2ø20 2x22C3ø8c/20 22C4ø8c 20	8ø16 2ø12 2x30C3ø6c/15 30C4ø6c/15	8ø25 4ø20 22C3ø8c/20 2x22C4ø8c/20	6ø25 6ø16 2E 22C3ø8c 20 22C4ø8c 20 22C5ø8c 20	6ø20 2ø12 2S 30C3ø6c/15 30C4ø6c/15	8ø20 2S 22C3ø8c/20 22C4ø6c/20	4ø25 2ø16 2S 22C3ø8c/20 2x22C4ø8c/20	6ø25 4ø16 2S 2x22C3ø8c/20 22C4ø8c/20	4ø25 8ø20 2S 22C3ø8c/20 2x22C4ø8c/20
3ø25 11ø25 L=505 11ø25 L=`70 1ø16 3ø16 L=455 3ø16 l=70 14ø25 L=`86 4ø16 L=136 2S 30C9ø10c/15 2x30C`0ø10c/15 3x30C`0ø10c/15	8ø25 2ø20 8ø25 L=186 2ø20 L=155 2S 2x22C5ø8c/20 22C6ø8c/20	4ø25 4ø16 4ø25 L=186 4ø16 L=136 2E 22C5ø8c/20 22C6ø8c/20	6ø25 2ø20 6ø25 L=186 2ø20 L=155 2S 22C5ø8c/2C 22C6ø8c/2C	8ø25 2ø20 8ø25 L=`86 2ø20 L=`55 2S 2x22C5ø8c/20 22C6ø8c 20	11ø20 7ø20 l=455 7ø20 L=130 18ø20 L=155 2S 22C5ø10c/20 2x22C6ø10c/2C 3x22C7ø10c/2C	8ø25 4ø20 8ø25 L=181 4ø20 L=15C 2E 22C5ø8c/20 2x22C6ø8c/20	6ø25 6ø16 6ø25 L=180 6ø16 L=130 2E 22C5ø8c/20 22C6ø8c/20 22C7ø8c 20	4ø25 4ø20 4ø25 L=`80 4ø20 L=`49 2S 22C5ø8c/20 22C6ø8c/20	6ø25 2ø16 6ø25 L=180 2ø16 L=130 2S 22C5ø8c/20 22C6ø8c/20	8ø25 2ø16 8ø25 L=180 2ø16 L=130 2S 2x22C5ø8c/20 22C6ø8c/20	6ø25 4ø16 8ø25 L=165 4ø16 L=115 2S 2x22C5ø8c/20 22C6ø8c/20	4ø25 8ø20 4ø25 L=181 8ø20 L=153 2S 22C5ø8c/20 2x22C6ø8c/20

Primer Piso

Planta Baja

Resumen Acero Forjados 1 a 9 Pilares		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø6	12956.8	3163	
	ø8	10495.2	4556	
	ø10	850.3	577	
	ø12	3615.9	3531	
	ø16	4368.7	7585	
	ø20	2643.7	7172	
	ø25	4384.6	18585	45169

Cimentación

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

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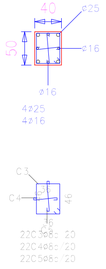
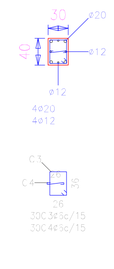
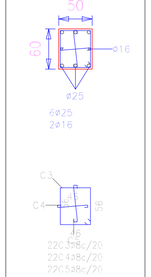
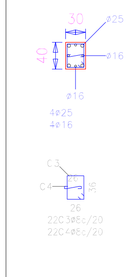
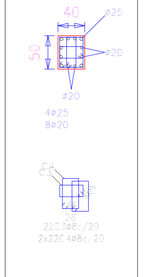
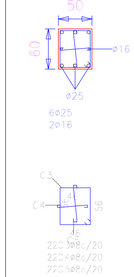
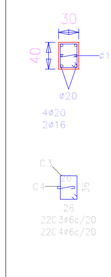
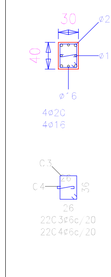
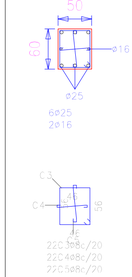
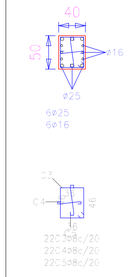
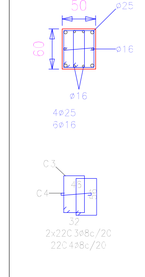
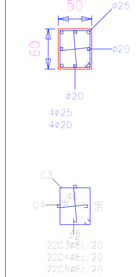
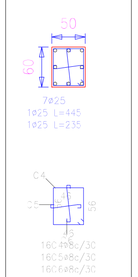
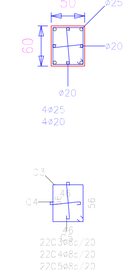
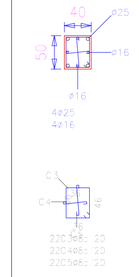
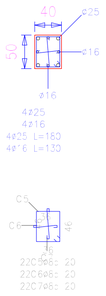
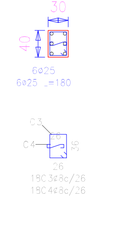
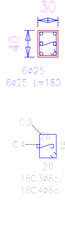
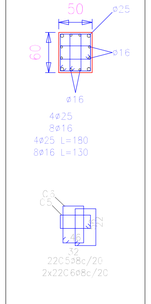
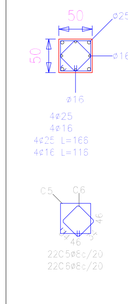
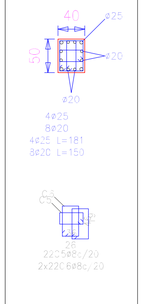
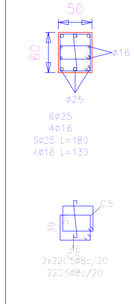
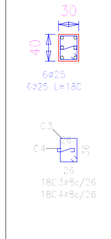
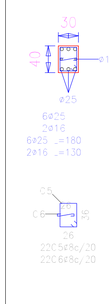
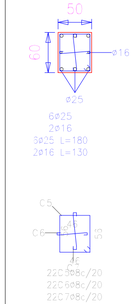
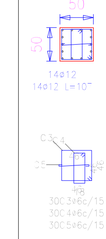
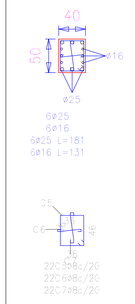
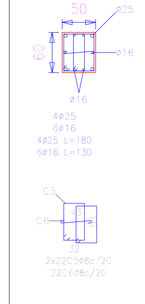
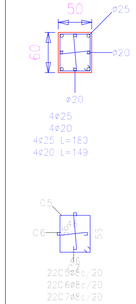
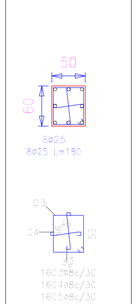
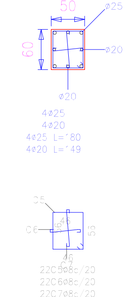
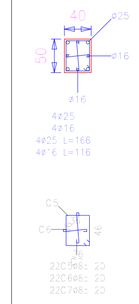
FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 11

DESPIECE DE COLUMNAS

P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	P29	P30	
																	Primer Piso
																	Planta Baja
																	Cimentación

Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: DESPIECE DE COLUMNAS

ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

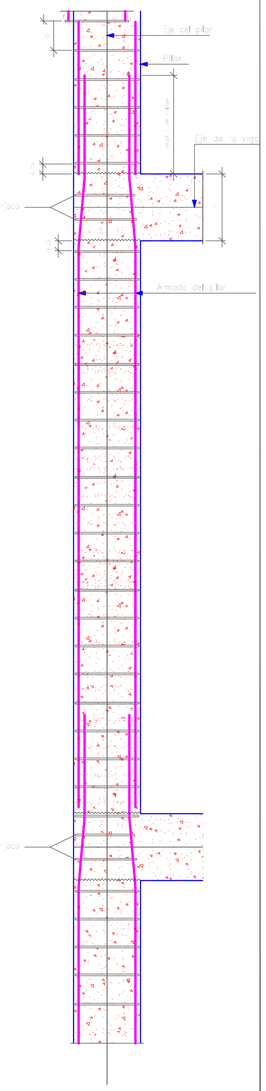
ESCALA: INDICADA

Lámina 12

DESPIECE DE COLUMNAS

P31	P32	P33	P34	P35	P36	P37	P38	P39	P40	P41	P42	P43	P44=P45	P46
Primer Piso														
Planta Baja														
Cimentación														

Detalle de estribado de pilares



Cuadro de pilares
Hormigón: H-21 , Control Normal
Acero: AH-400 , Control Normal
Escala: 1:50

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: DESPIECE DE COLUMNAS

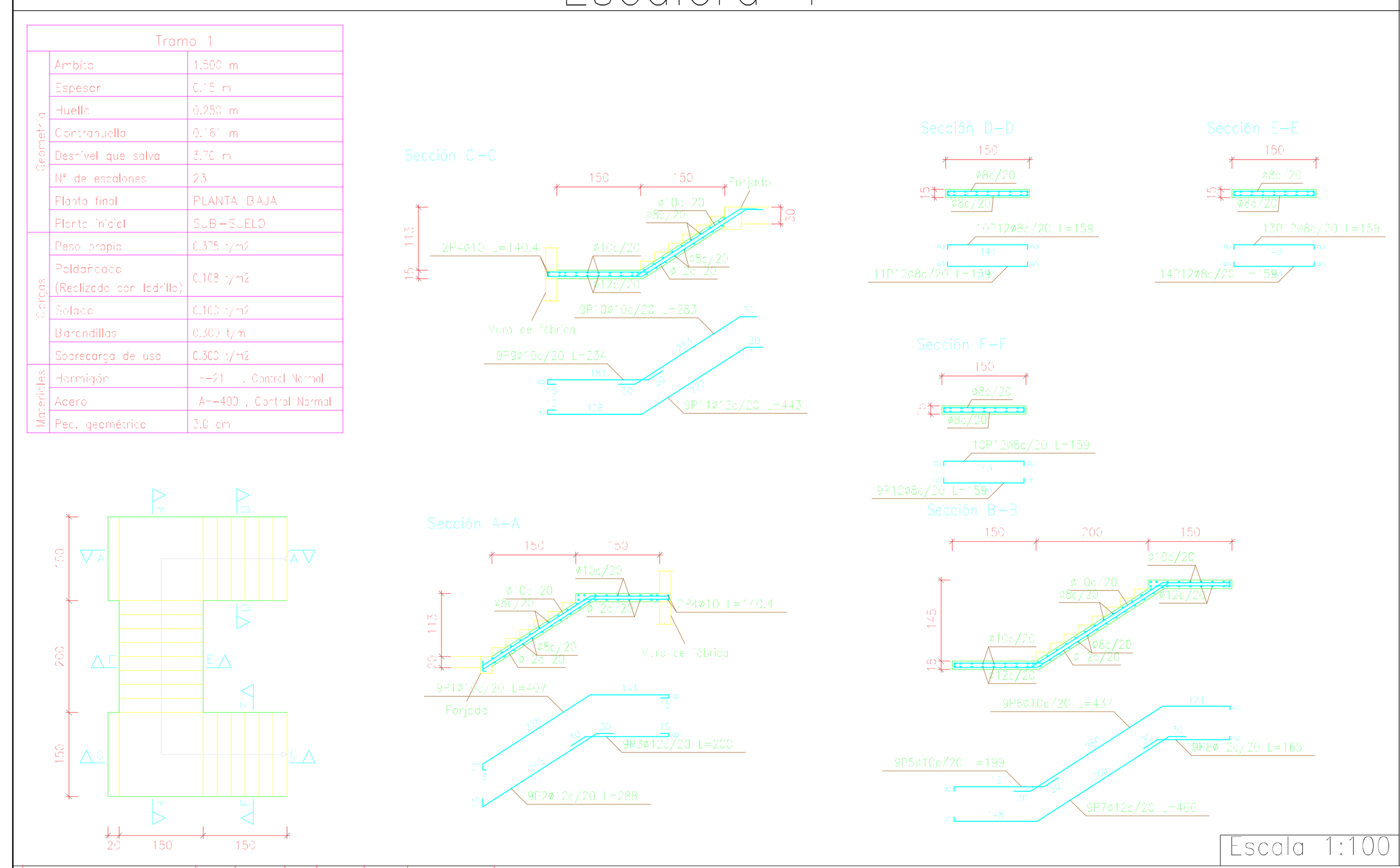
ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 13

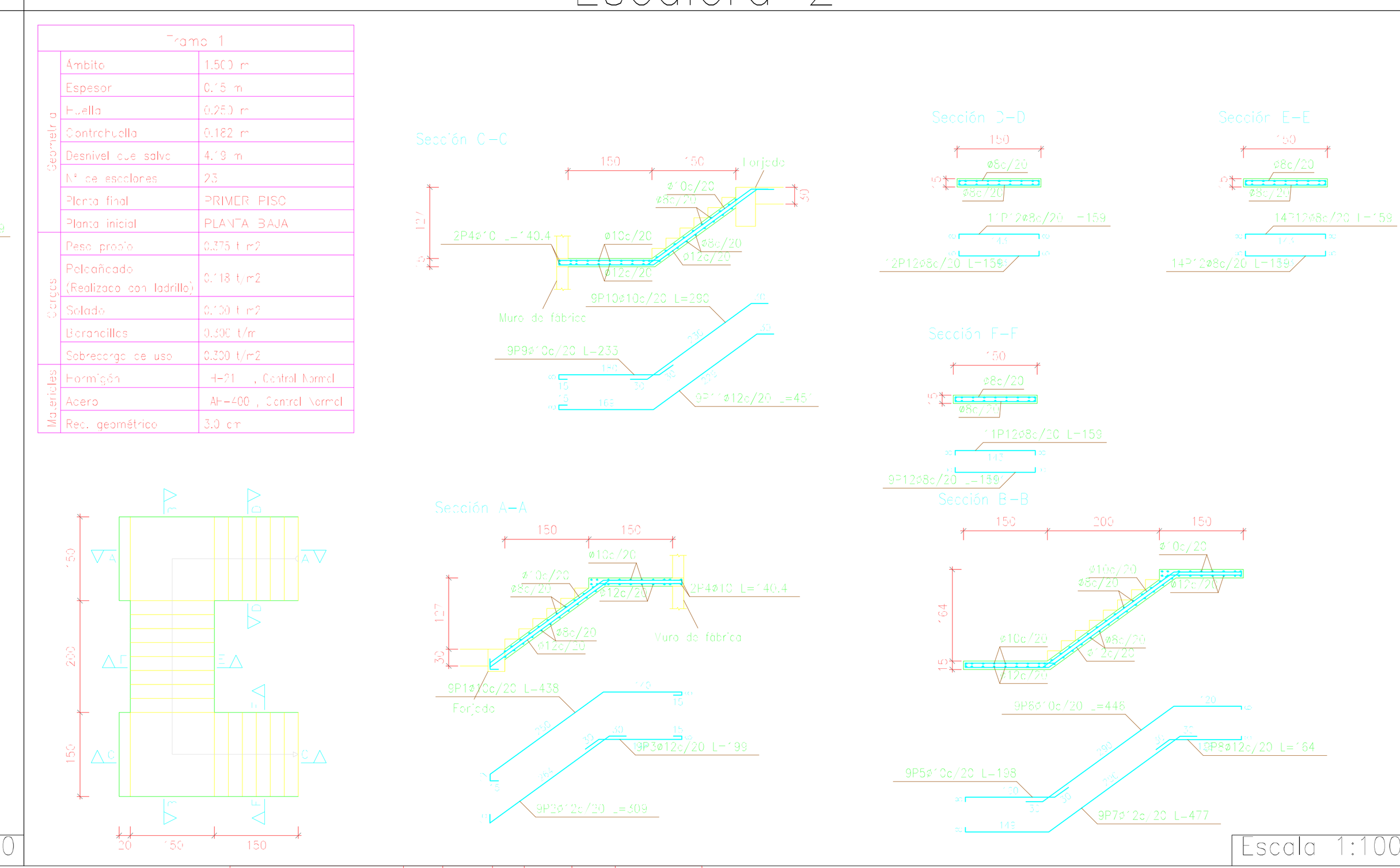
Escalera 1



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera 1-Tramo 1	1	ø10	5	707	2663	22.6
	2	ø12	5	285	2567	23.0
	3	ø12	5	200	1800	16.0
	4	ø10	4	140	560	3.5
	5	ø10	5	199	1791	11.0
	6	ø10	5	437	2933	24.2
	7	ø12	5	466	4194	37.2
	8	ø12	5	165	1485	13.1
	9	ø10	5	234	2106	13.0
	10	ø10	5	283	2547	15.7
	11	ø12	5	443	3987	35.4
	12	ø8	57	159	10653	42.0
					Total+10%	282.5
					ø8:	46.2
					ø10:	99.0
					ø12:	137.3
					Total	282.5

Resumen Acero Escalera 1		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	136.5	46	
	ø10	146.0	99	
	ø12	140.6	137	282

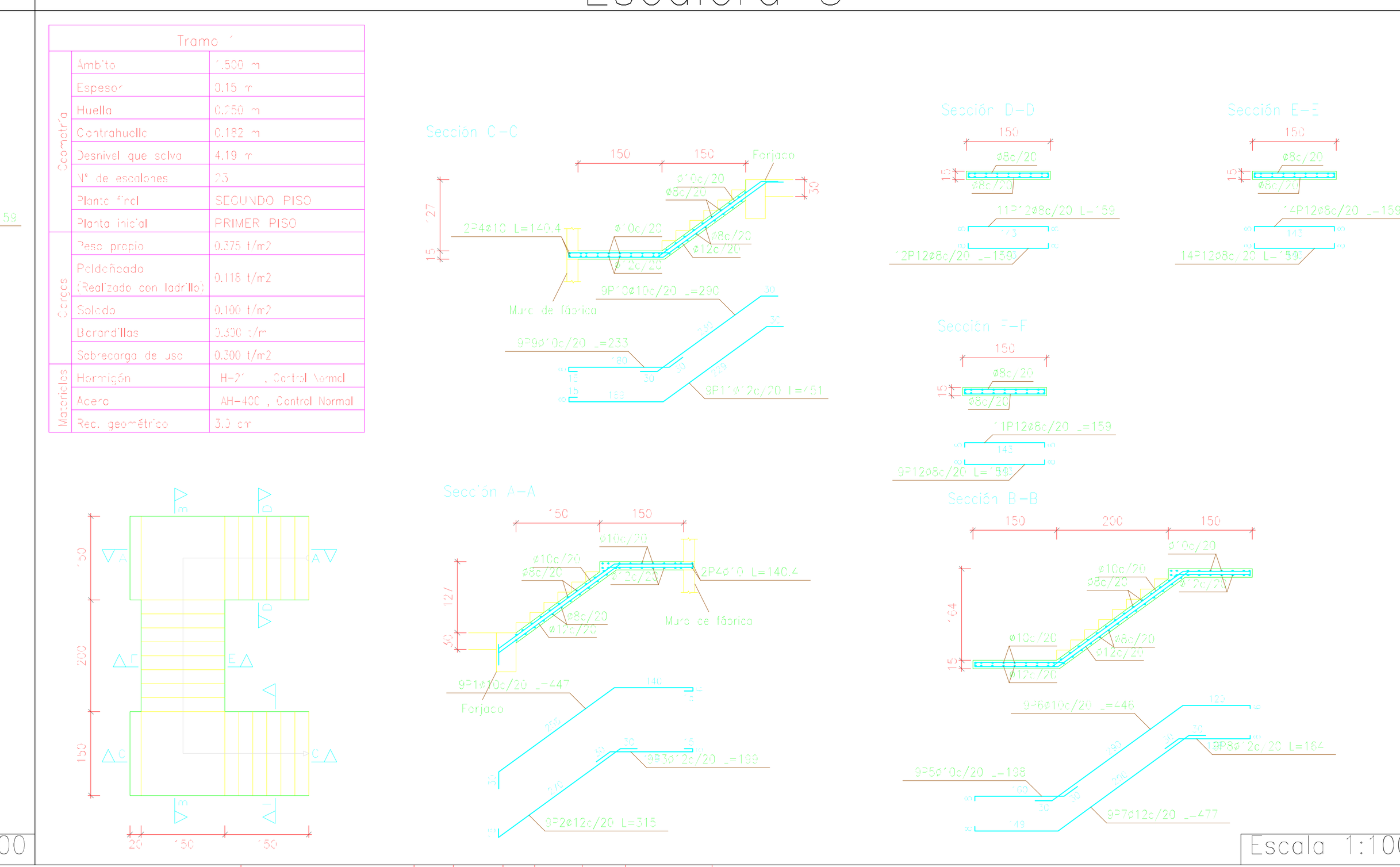
Escalera 2



Resumen Acero Escalera 2		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.1	102	
	ø12	144.0	141	292

Total 292.4

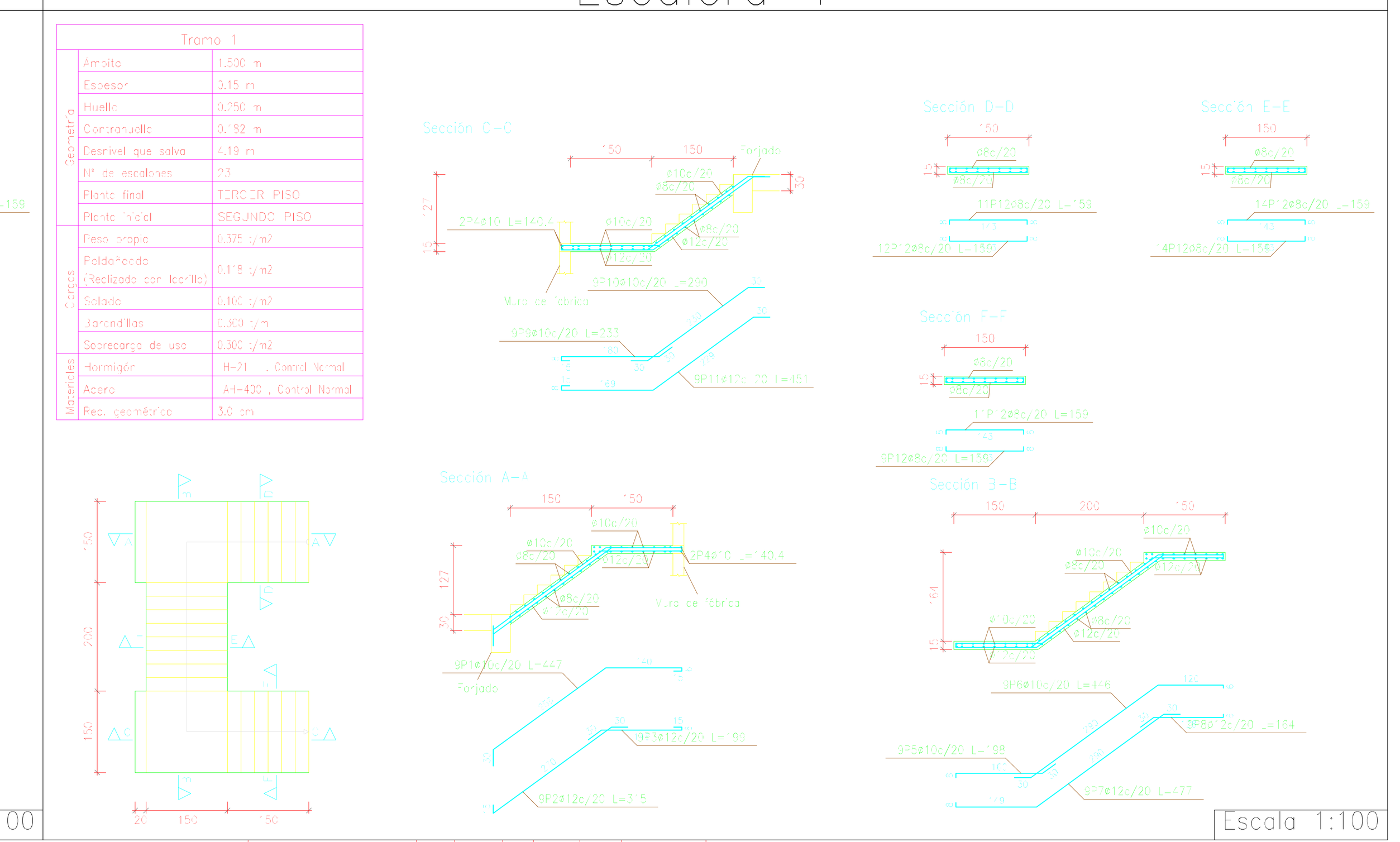
Escalera 3



Resumen Acero Escalera 3		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

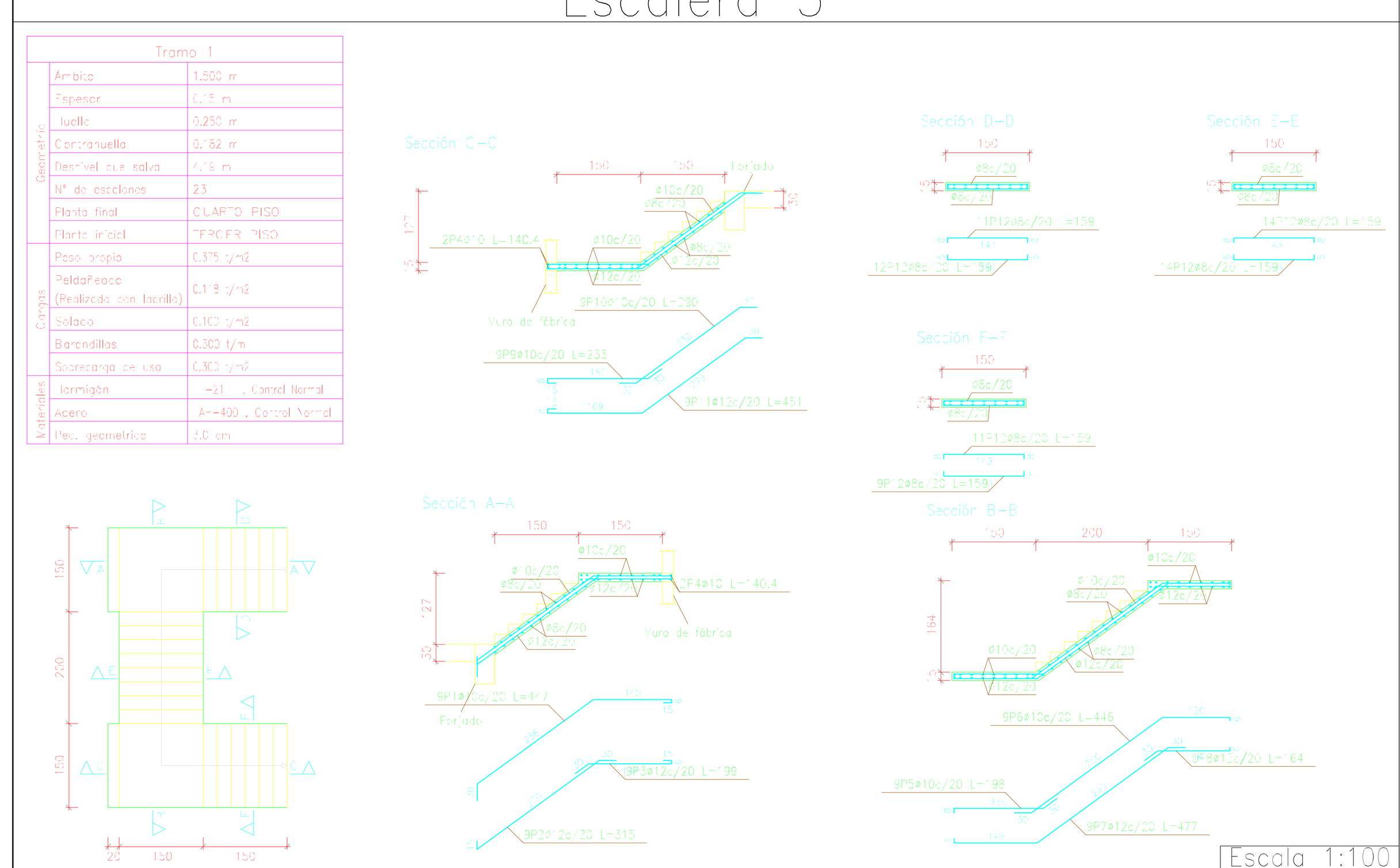
Total 292.4

Escalera 4



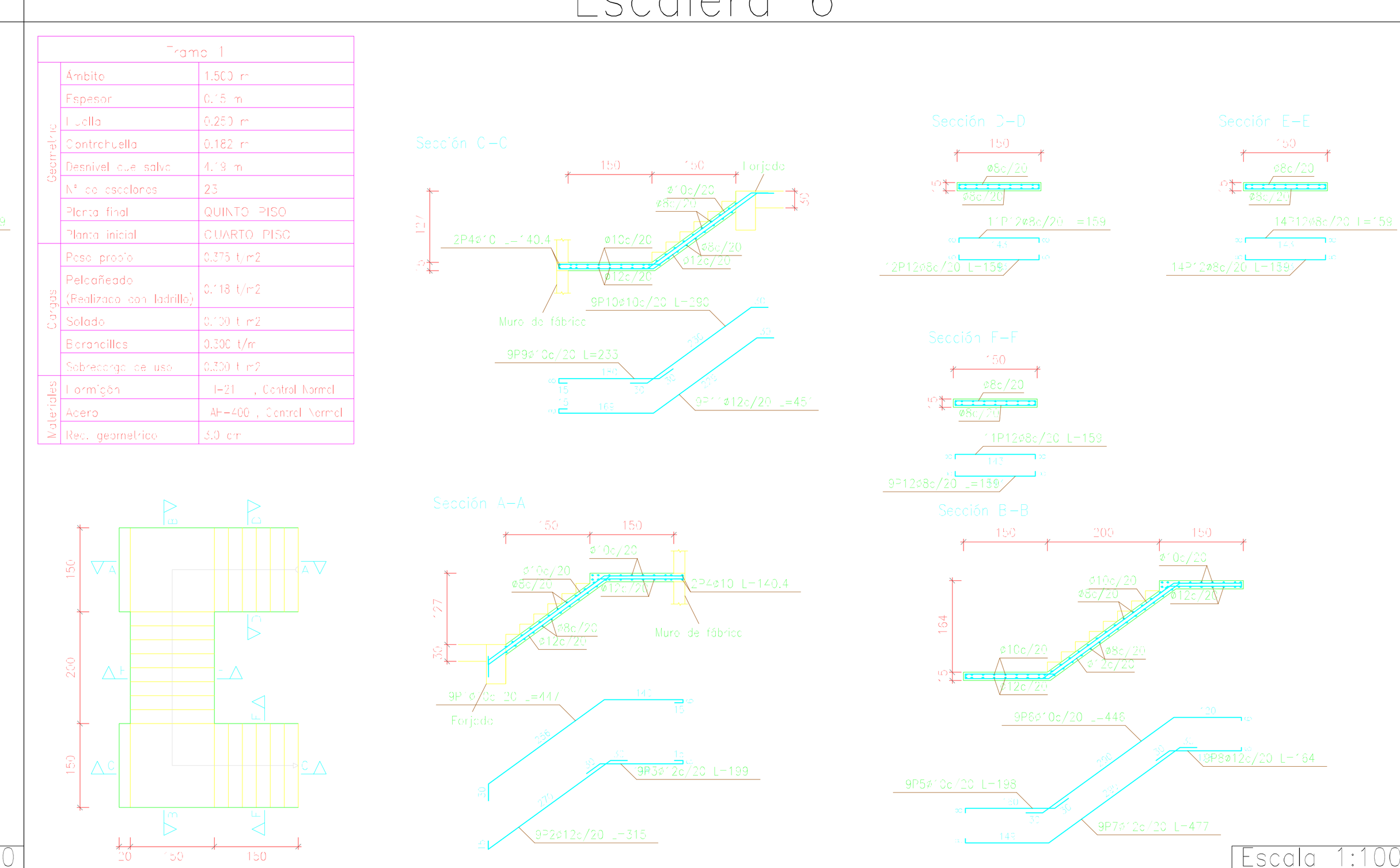
Resumen Acero Escalera 4		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

Escalera 5



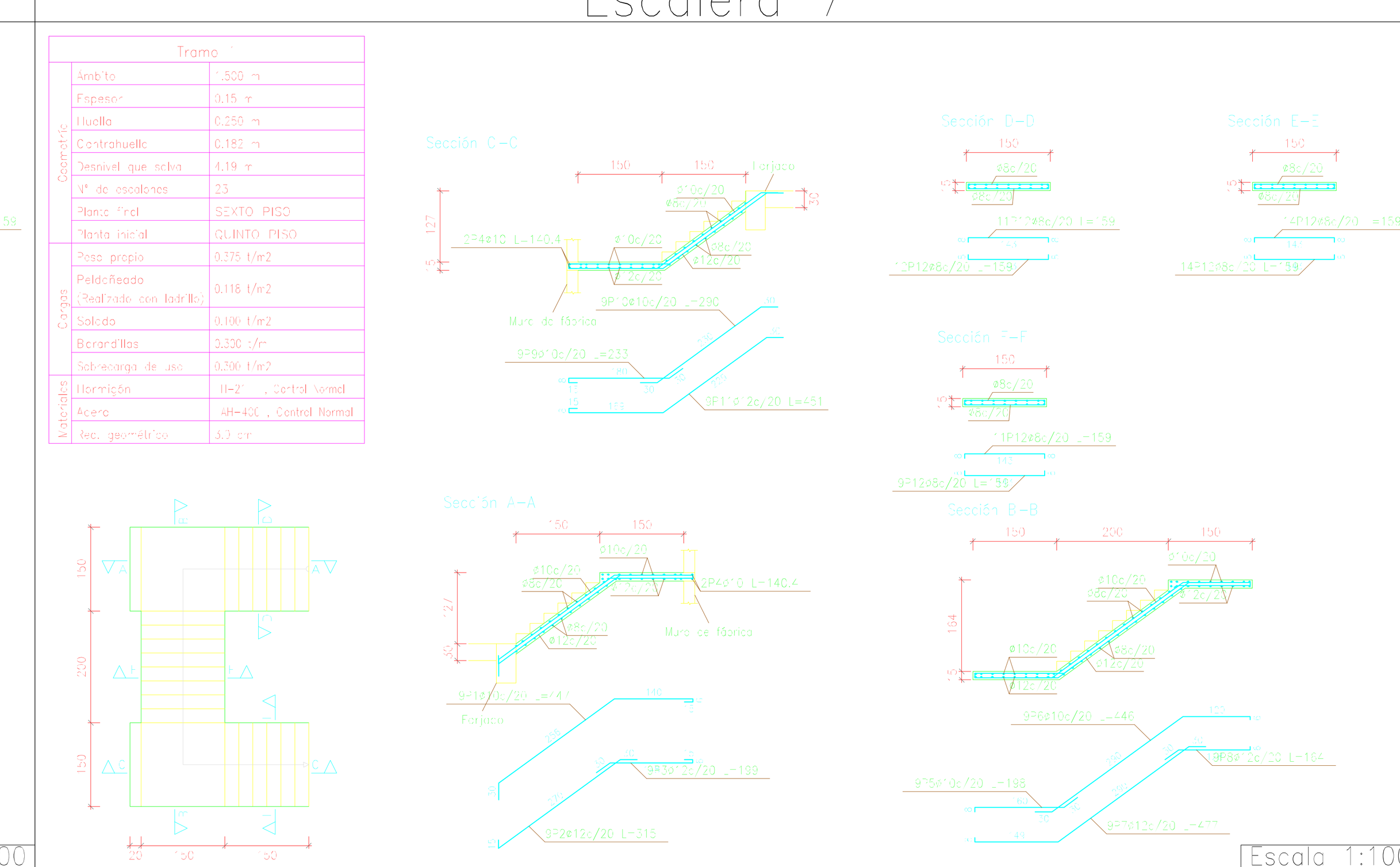
Resumen Acero Escalera 5		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

Escalera 6



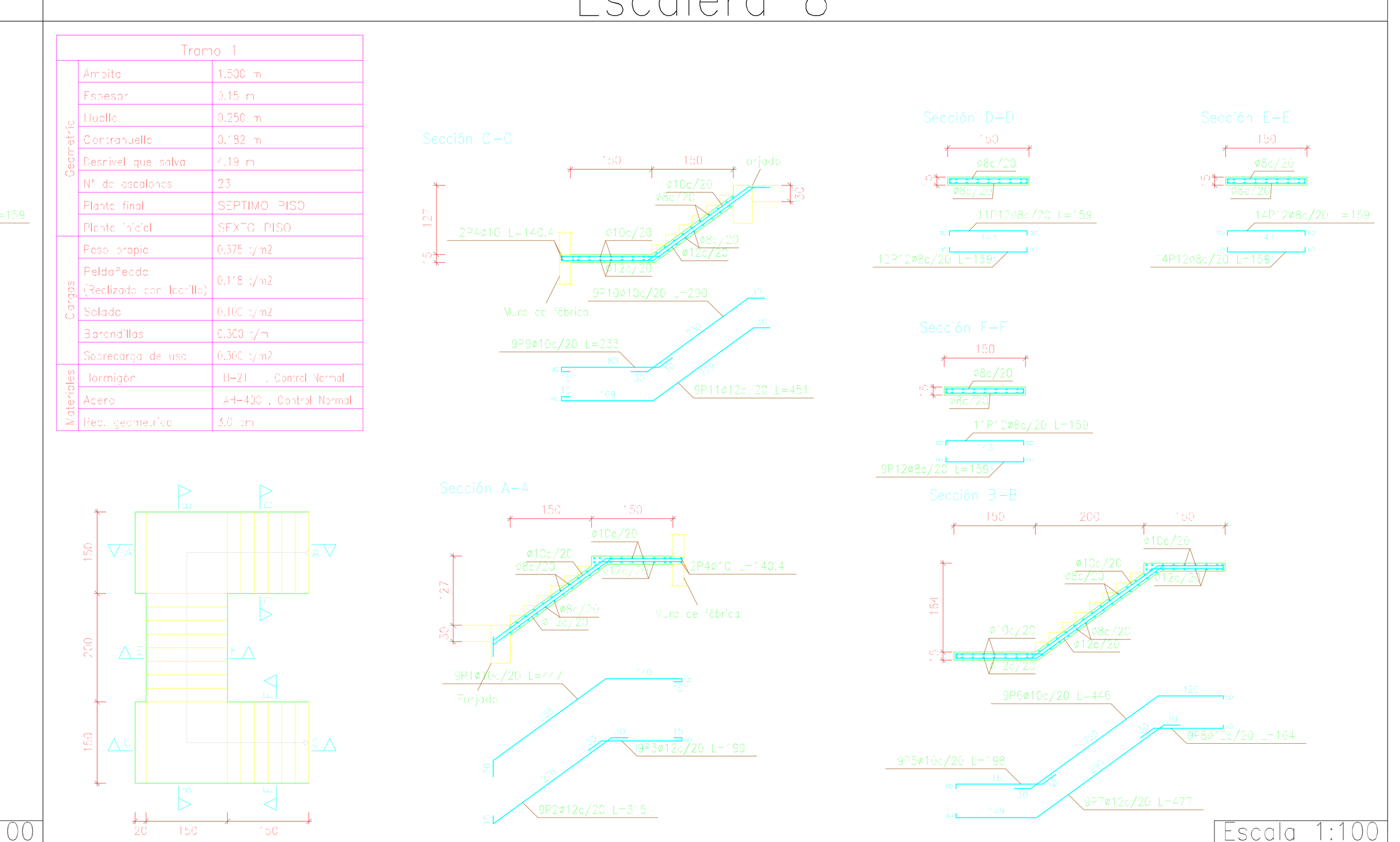
Resumen Acero Escalera 6		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

Escalera 7



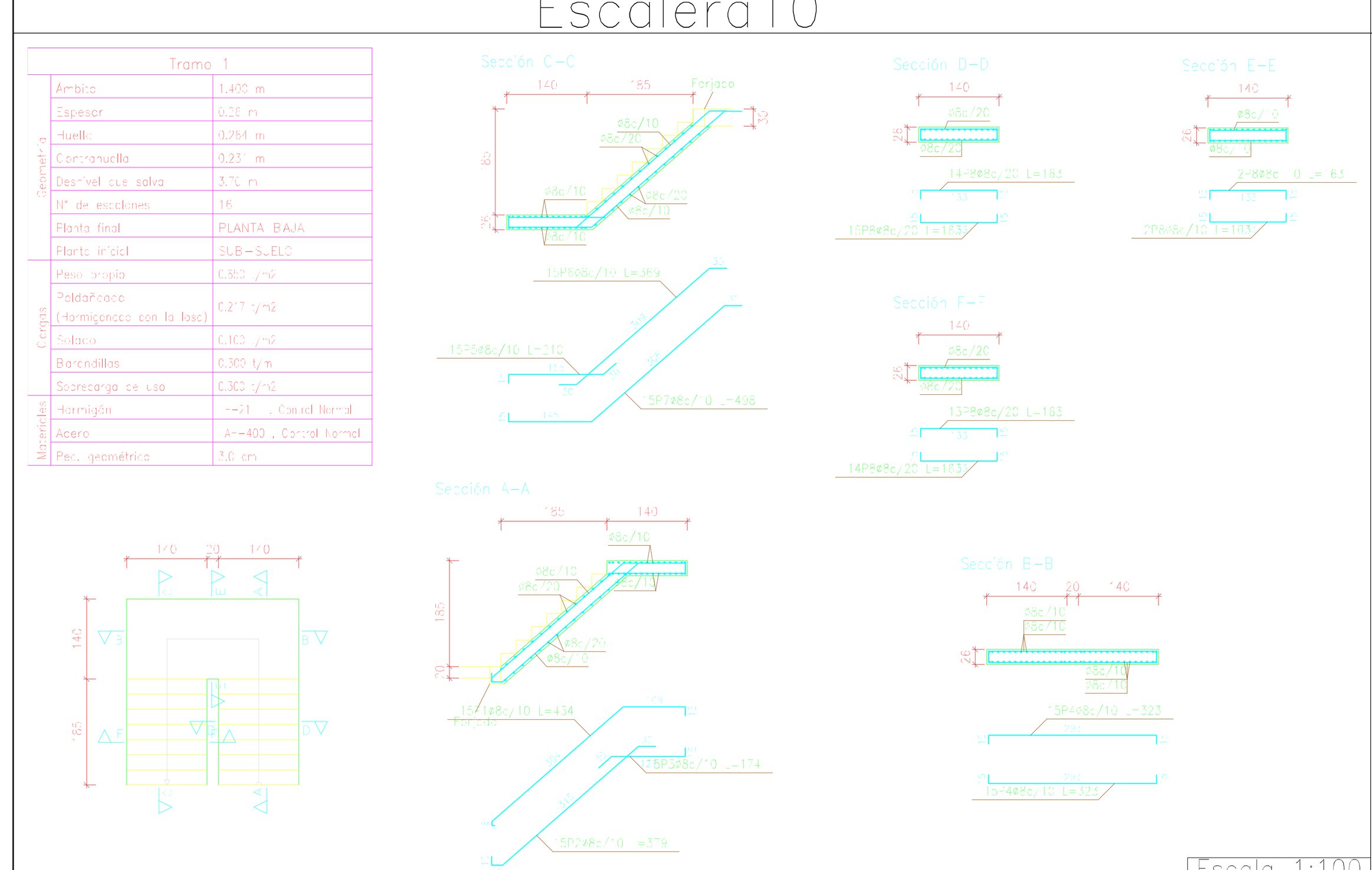
Resumen Acero Escalera 7		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

Escalera 8



Resumen Acero Escalera 8		Long. total (m)	Peso+10% (kg)	Total
AH-400CN	ø8	112.9	49	
	ø10	150.9	102	
	ø12	144.5	141	292

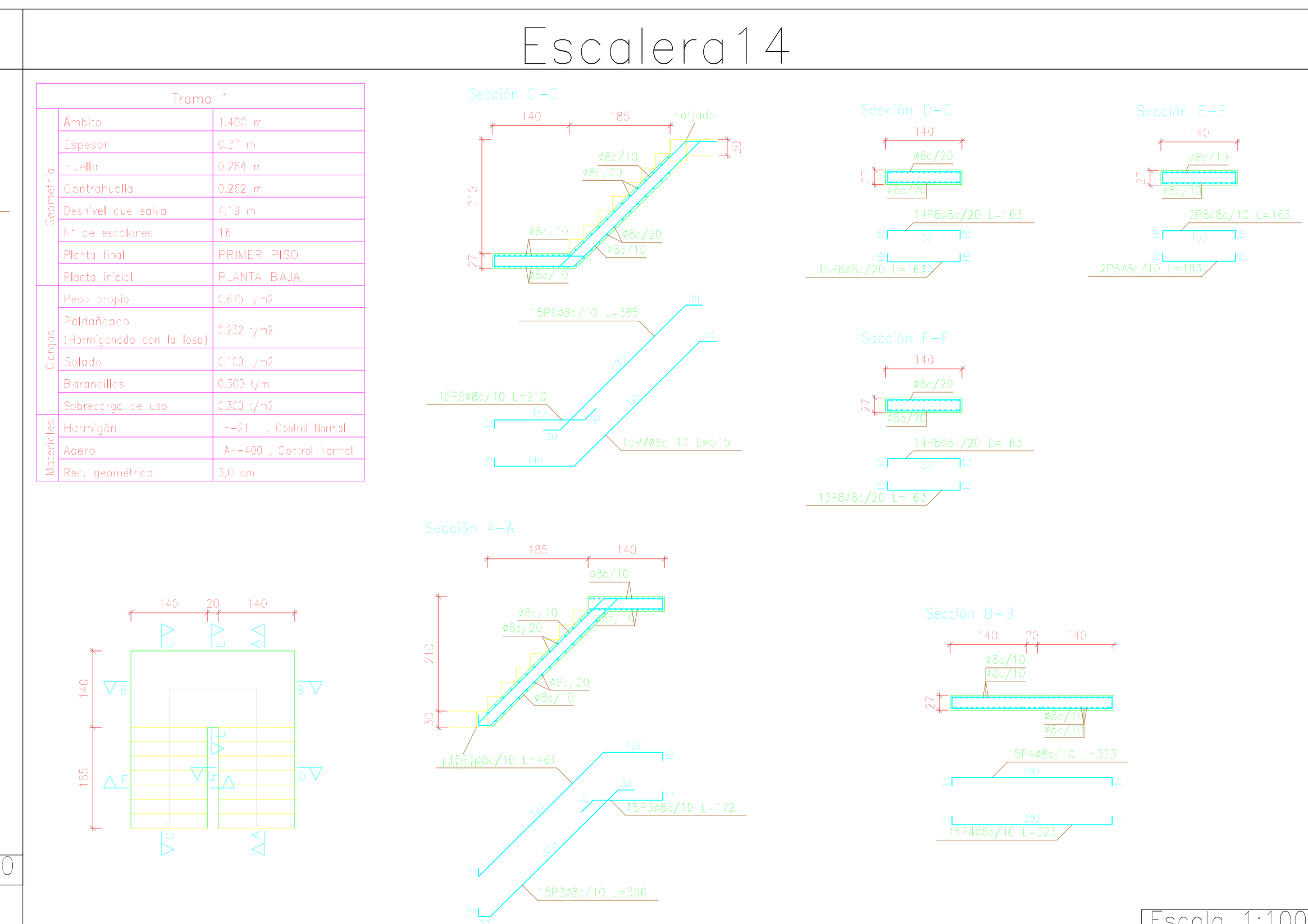
Escalera10



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera10-Tramo 1	1	ø8	15	434	6510	25.7
	2	ø8	15	374	5685	22.4
	3	ø8	15	174	2610	10.3
	4	ø8	30	323	9690	38.2
	5	ø8	15	210	3150	12.4
	6	ø8	15	363	5535	21.8
	7	ø8	15	498	7470	29.5
	8	ø8	60	163	9780	38.6
					Total+10%	218.6
					ø8:	218.6
					Total	218.6

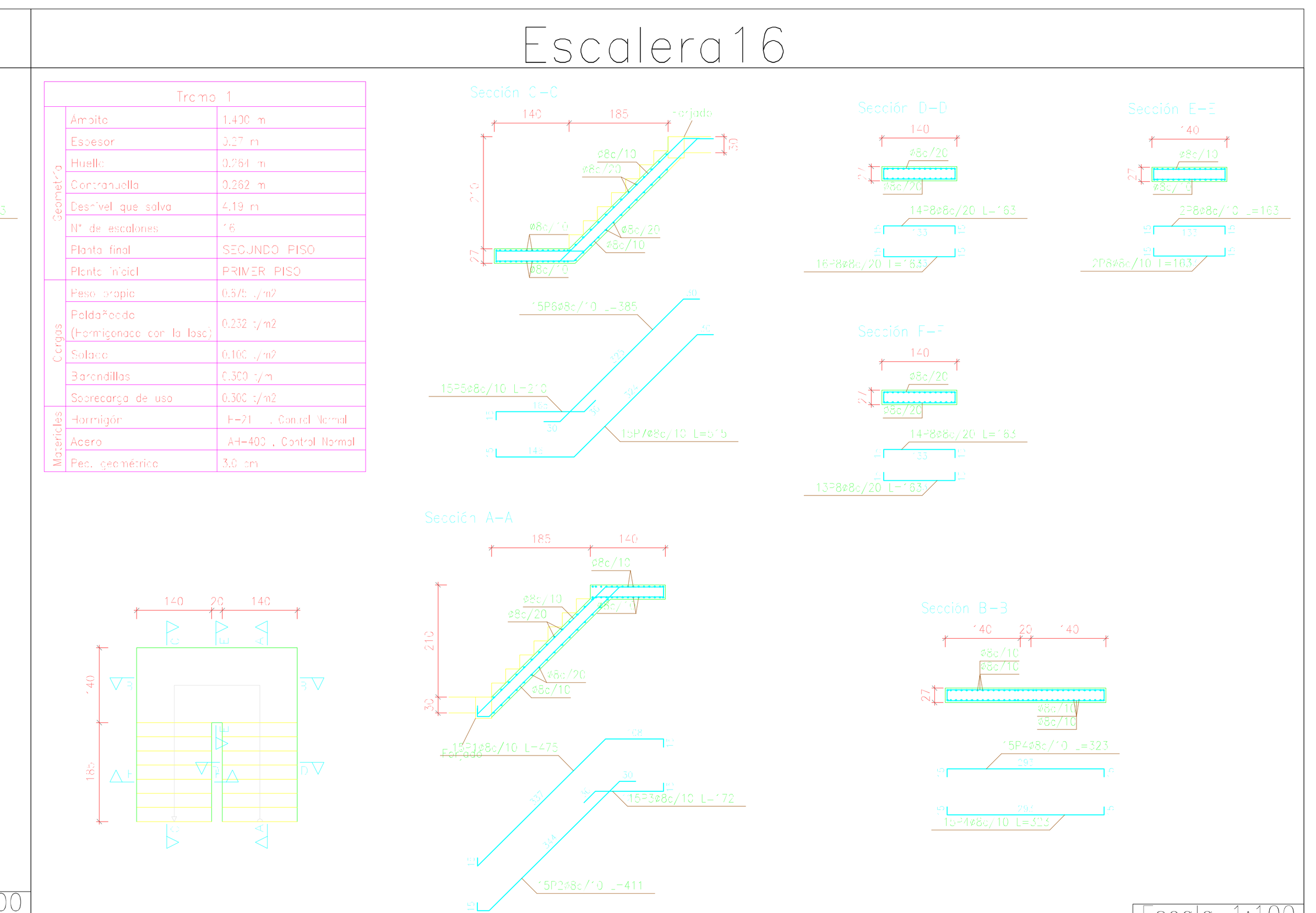
Resumen Acero Escalera10		Long. total (m)	Peso+10% (kg)
AH-400CN	ø8	504.3	219

Escalera14



Resumen Acero Escalera14		Long. total (m)	Peso+10% (kg)
AH-400CN	ø8	515.6	224

Escalera16



Resumen Acero Escalera16		Long. total (m)	Peso+10% (kg)
AH-400CN	ø8	521.5	226

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
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CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: ARMADURA EN ESCALERAS

ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

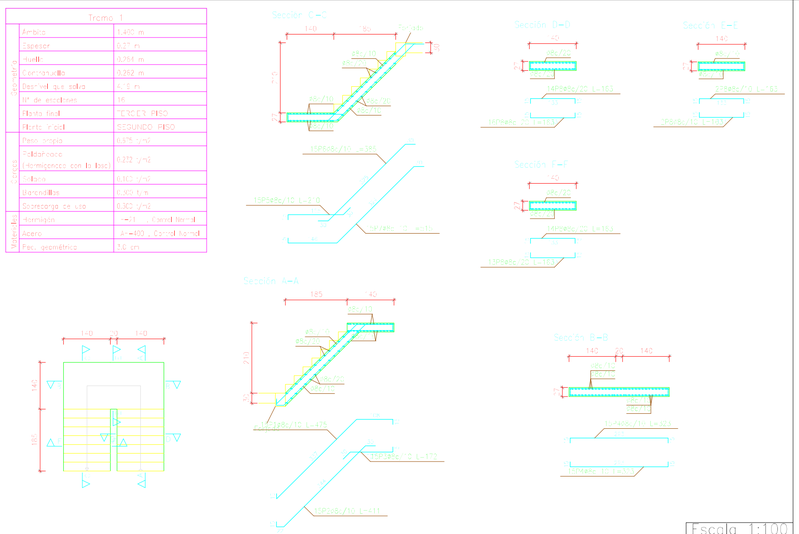
FECHA: DICIEMBRE-2019

ESCALA: INDICADA

Lámina 31

Escalera17

Tramo: 1	
Ámbito	1.400 m
Espesor	0.27 m
Huella	0.264 m
Contrahuella	0.282 m
Desnivel que salva	4.5 m
Nº de escalones	16
Planta final	SEXTO PISO
Planta inicial	QUINTO PISO
Peso propio	675 kg/m2
Pelladeado (Hormigonado con la losa)	0.232 kg/m2
Solado	0.100 kg/m2
Barandillas	0.100 kg/m
Sobrecarga de uso	0.300 kg/m2
Hormigón	H-21 , Control Normal
Acero	AH-400 , Control Normal
Rec. geométrico	3.0 cm

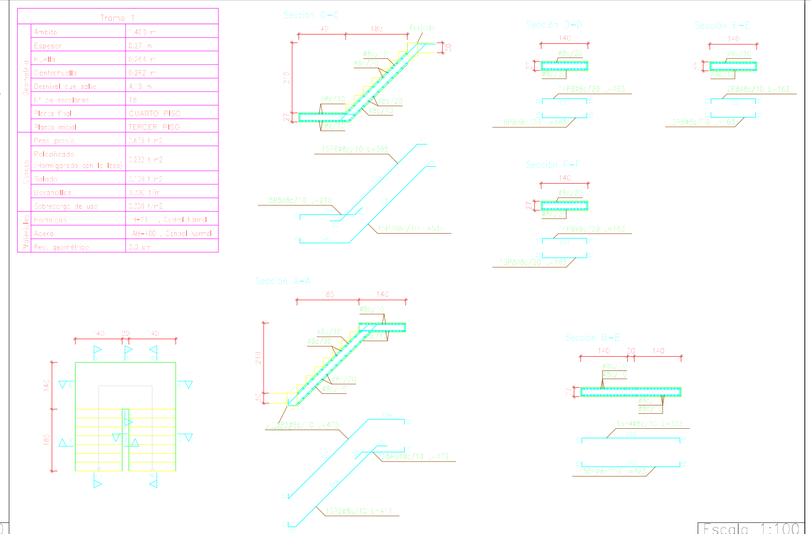


Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera2=Tramo 1	1	Ø8	4	775	3129	28.3
	2	Ø8	2	771	6180	24.3
	3	Ø8	2	179	3580	16.7
	4	Ø8	32	223	5930	38.2
	5	Ø8	16	370	5920	16.7
	6	Ø8	2	565	5770	27.5
	7	Ø8	2	565	7720	36.5
	8	Ø8	32	163	5792	39.2
					Total+10%	226.3
					Ø8	226.3
					Total	226.3

Resumen Acero Escalera17	Long. total (m)	Peso+10% (kg)
AH-400CN Ø8	521.5	226

Escalera18

Tramo: 1	
Ámbito	1.400 m
Espesor	0.27 m
Huella	0.264 m
Contrahuella	0.282 m
Desnivel que salva	4.5 m
Nº de escalones	16
Planta final	CUARTO PISO
Planta inicial	TERCER PISO
Peso propio	675 kg/m2
Pelladeado (Hormigonado con la losa)	0.232 kg/m2
Solado	0.100 kg/m2
Barandillas	0.100 kg/m
Sobrecarga de uso	0.300 kg/m2
Hormigón	H-21 , Control Normal
Acero	AH-400 , Control Normal
Rec. geométrico	3.0 cm

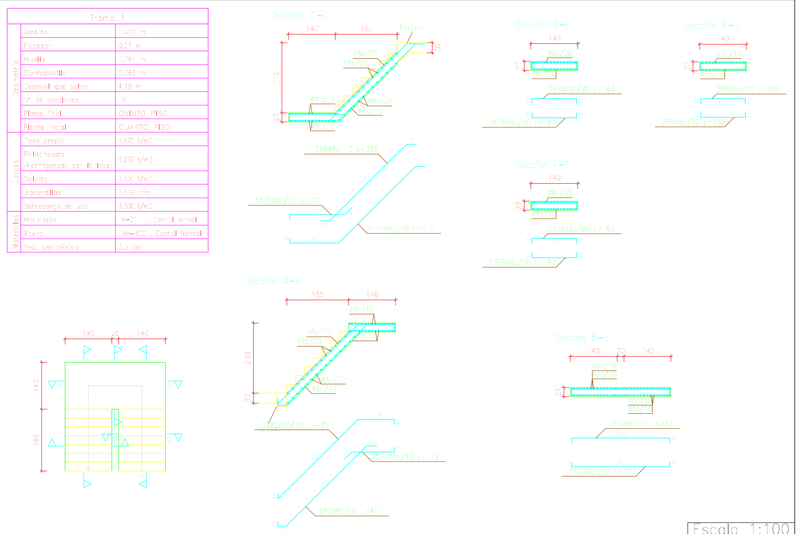


Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera2=Tramo 1	1	Ø8	4	775	3129	28.3
	2	Ø8	2	771	6180	24.3
	3	Ø8	2	179	3580	16.7
	4	Ø8	32	223	5930	38.2
	5	Ø8	16	370	5920	16.7
	6	Ø8	2	565	5770	27.5
	7	Ø8	2	565	7720	36.5
	8	Ø8	32	163	5792	39.2
					Total+10%	226.3
					Ø8	226.3
					Total	226.3

Res...men Acero Escalera18	Long. total (m)	Peso+10% (kg)
AH-400CN Ø8	521.5	226

Escalera19

Tramo: 1	
Ámbito	1.400 m
Espesor	0.27 m
Huella	0.264 m
Contrahuella	0.282 m
Desnivel que salva	4.19 m
Nº de escalones	15
Planta final	QUINTO PISO
Planta inicial	CUARTO PISO
Peso propio	675 kg/m2
Pelladeado (Hormigonado con la losa)	0.232 kg/m2
Solado	0.100 kg/m2
Barandillas	0.100 kg/m
Sobrecarga de uso	0.300 kg/m2
Hormigón	H-21 , Control Normal
Acero	AH-400 , Control Normal
Rec. geométrico	3.0 cm

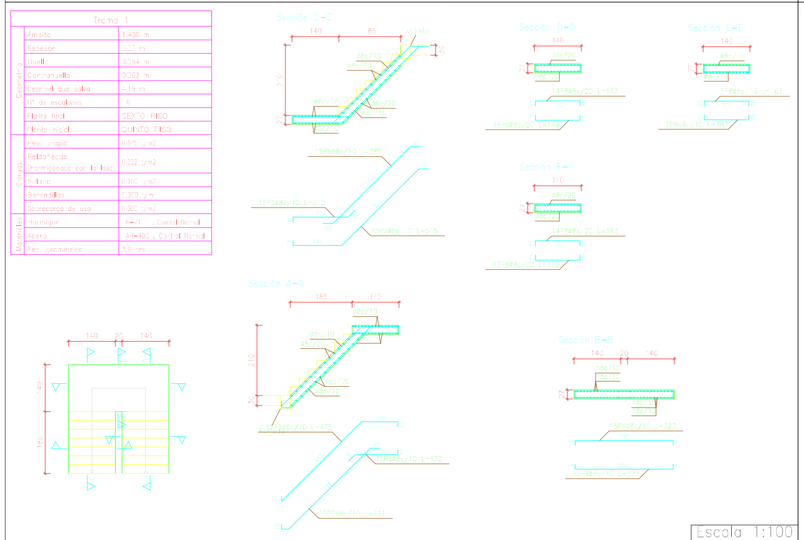


Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera2=Tramo 1	1	Ø8	4	775	3129	28.3
	2	Ø8	2	771	6180	24.3
	3	Ø8	2	179	3580	16.7
	4	Ø8	32	223	5930	38.2
	5	Ø8	16	370	5920	16.7
	6	Ø8	2	565	5770	27.5
	7	Ø8	2	565	7720	36.5
	8	Ø8	32	163	5792	39.2
					Total+10%	226.3
					Ø8	226.3
					Total	226.3

Resumen Acero Escalera19	Long. total (m)	Peso+10% (kg)
AH-400CN Ø8	521.5	226

Escalera20

Tramo: 1	
Ámbito	1.400 m
Espesor	0.27 m
Huella	0.264 m
Contrahuella	0.282 m
Desnivel que salva	4.79 m
Nº de escalones	16
Planta final	SEXTO PISO
Planta inicial	QUINTO PISO
Peso propio	675 kg/m2
Pelladeado (Hormigonado con la losa)	0.232 kg/m2
Solado	0.100 kg/m2
Barandillas	0.100 kg/m
Sobrecarga de uso	0.300 kg/m2
Hormigón	H-21 , Control Normal
Acero	AH-400 , Control Normal
Rec. geométrico	3.0 cm

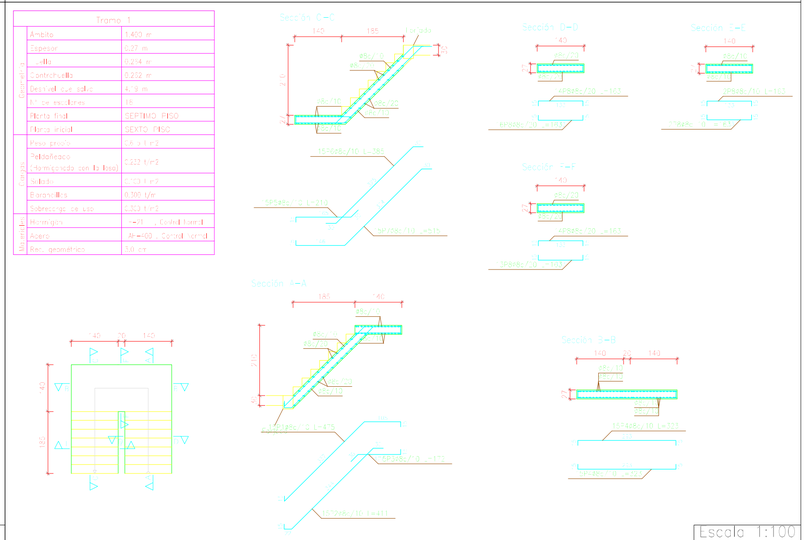


Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera2=Tramo 1	1	Ø8	4	775	3129	28.3
	2	Ø8	2	771	6180	24.3
	3	Ø8	2	179	3580	16.7
	4	Ø8	32	223	5930	38.2
	5	Ø8	16	370	5920	16.7
	6	Ø8	2	565	5770	27.5
	7	Ø8	2	565	7720	36.5
	8	Ø8	32	163	5792	39.2
					Total+10%	226.3
					Ø8	226.3
					Total	226.3

Resumen Acero Escalera20	Long. total (m)	Peso+10% (kg)
AH-400CN Ø8	521.5	226

Escalera21

Tramo: 1	
Ámbito	1.400 m
Espesor	0.27 m
Huella	0.264 m
Contrahuella	0.282 m
Desnivel que salva	4.79 m
Nº de escalones	16
Planta final	SEPTIMO PISO
Planta inicial	SEXTO PISO
Peso propio	675 kg/m2
Pelladeado (Hormigonado con la losa)	0.232 kg/m2
Solado	0.100 kg/m2
Barandillas	0.100 kg/m
Sobrecarga de uso	0.300 kg/m2
Hormigón	H-21 , Control Normal
Acero	AH-400 , Control Normal
Rec. geométrico	3.0 cm



Elemento	Pos.	Diám.	No.	Long. (cm)	Total (cm)	AH-400CN (kg)
Escalera2=Tramo 1	1	Ø8	4	775	3129	28.3
	2	Ø8	2	771	6180	24.3
	3	Ø8	2	179	3580	16.7
	4	Ø8	32	223	5930	38.2
	5	Ø8	16	370	5920	16.7
	6	Ø8	2	565	5770	27.5
	7	Ø8	2	565	7720	36.5
	8	Ø8	32	163	5792	39.2
					Total+10%	226.3
					Ø8	226.3
					Total	226.3

Resumen Acero Escalera21	Long. total (m)	Peso+10% (kg)
AH-400CN Ø8	521.5	226

UNIVERSIDAD AUTÓNOMA JUAN MISAEL SARACHO
FACULTAD DE CIENCIAS Y TECNOLOGÍA
CARRERA DE INGENIERÍA CIVIL

PROYECTO: DISEÑO ESTRUCTURAL CASA FISCAL CIUDAD DE TARIJA

REALIZADO POR: GERARDO PORTAL LLANOS

TITULO DE LAMINA: ARMADURA EN ESCALERAS

ASIGNATURA: CIV-502 PROYECTO DE INGENIERIA CIVIL II

FECHA: DICIEMBRE-2019

ESCALA: INDICADA

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