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OBRA: Magma

TITULO : Doblado Losas Entrepiso	LISTA: LH-3	VERSION: 0
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SECTOR: Entrepiso	PLANO: posiciones de losas sAzotea
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FECHA: 20/12/2019	PROYECTO: RP	EJECUCION: MDF	CONTROL: RP
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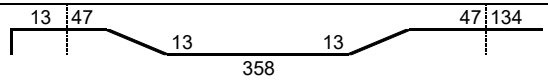
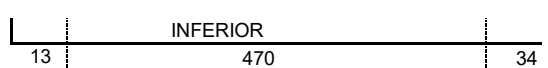
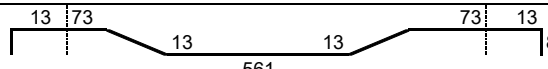
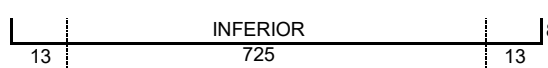
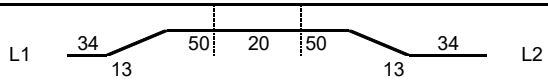
M O D I F I C A C I O N E S

No.	DESCRIPCION	FECHA
0	P/APROBACION	20/12/2019

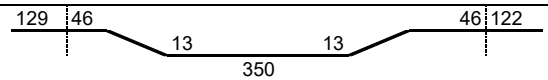
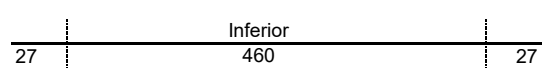
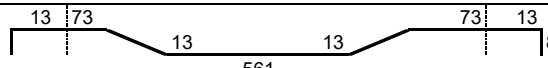
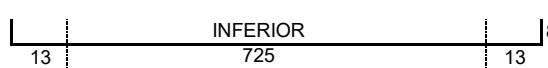
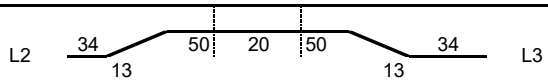
a) Calidad del hormigón:				H - 30	$\sigma'_{bk} =$	300	kg/cm ²
b) Acero p / H°A°:				ADN-420 Tipo III	$\sigma_{ek} =$	4200	kg/cm ²
c) Antes de preparar la armadura <u>se deberán verificar todas</u> <u>las medidas en obra.</u>							

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Doblado Losas Entrepiso
Planilla de doblado de fierros

Tensión del hormigón: 300 kg/cm²
Tensión del acero: 4200 kg/cm²
Tensión de adherencia: 18 kg/cm²

L1				e = 12 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
P1 X	Ø10		1	24	24	6.34	152.2	94	sep. 30 cm.
P2 X	Ø10		1	24	24	5.26	126.2	78	sep. 30 cm.
P3 Y	Ø8		1	13	13	7.75	100.8	40	sep. 36 cm.
P4 Y	Ø8		1	13	13	7.67	99.7	39	sep. 36 cm.
P5 X	Ø10		1	48	48	2.14	102.7	63	adicional de apoyo L1 / L2 sep. 15 cm.

Total = 251 kg.

L2				e = 12 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
P1 X	Ø8		1	24	24	7.19	172.6	68	sep. 30 cm.
P2 X	Ø8		1	24	24	5.14	123.4	49	sep. 30 cm.
P3 Y	Ø8		1	12	12	7.75	93.0	37	sep. 40 cm.
P4 Y	Ø8		1	12	12	7.67	92.0	36	sep. 40 cm.
P5 X	Ø10		1	48	48	2.14	102.7	63	adicional de apoyo L2 / L3 sep. 15 cm.

Total = 190 kg.

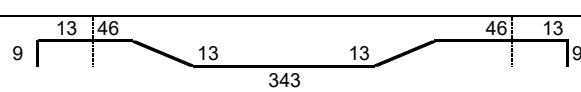
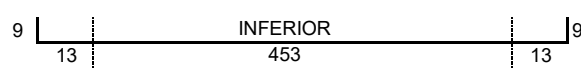
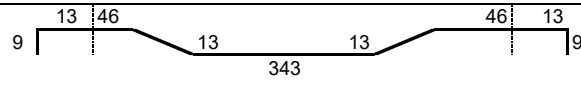
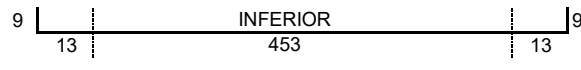
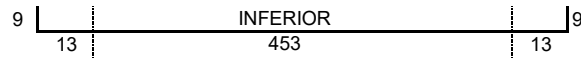
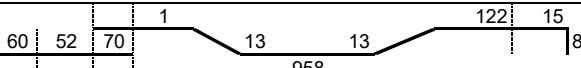
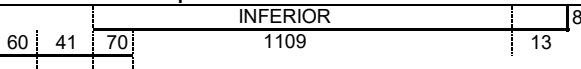


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Doblado Losas Entrepiso
Planilla de doblado de hierros

L3 - L14				e = 12 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
P1 X	Ø8		12	24	288	6.00	1728.0	681	sep. 30 cm.
P2 X	Ø8		5	24	120	12.00	1440.0	568	sep. 30 cm.
NOTA: Ver plano para aclaraciones sobre esta posición.									
P3 Y	Ø8		12	12	144	7.75	1116.0	440	sep. 40 cm.
P4 Y	Ø8		12	12	144	7.67	1104.5	436	sep. 40 cm.
P5 X	Ø10		12	48	576	2.14	1232.6	760	adicional de apoyo L3 / L4 sep. 15 cm.
Total = 2125 kg.									

L15				e = 12 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
P1 X	Ø10		1	24	24	6.14	147.4	91	sep. 30 cm.
P2 X	Ø10		1	24	24	5.06	121.4	75	sep. 30 cm.
P3 Y	Ø8		1	13	13	7.75	100.8	40	sep. 36 cm.
P4 Y	Ø8		1	13	13	7.67	99.7	39	sep. 36 cm.
Total = 245 kg.									

Magma
Doblado Losas Entrepiso
Planilla de doblado de hierros

L16				e = 14 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
P1 X	Ø12		1	28	28	5.05	141.4	125	sep. 27 cm.
P2 X	Ø12		1	28	28	4.97	139.2	123	sep. 27 cm.
P3 X	Ø12		1	18	18	5.05	90.9	81	sep. 27 cm.
P4 X	Ø12		1	18	18	4.97	89.5	79	sep. 27 cm.
P5 X	Ø20		1	4	4	4.97	19.9	49	sep. 10 cm.
P6 Y	Ø8		1	12	12	12.00	144.0	57	sep. 40 cm.
		NOTA: 60cm de empalme con hierros de losa de escalera.		1	12	12	1.82	21.8	
P7 Y	Ø8		1	12	12	12.00	144.0	57	sep. 40 cm.
		NOTA: 60cm de empalme con hierros de losa de escalera.		1	12	12	1.71	20.5	
Total =								588	kg.

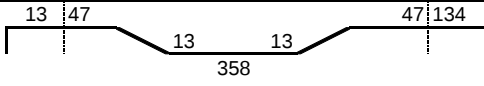
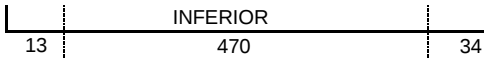
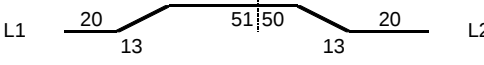
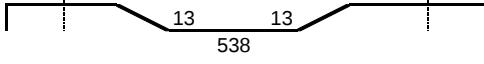
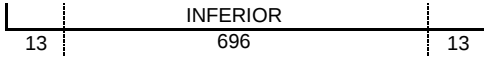
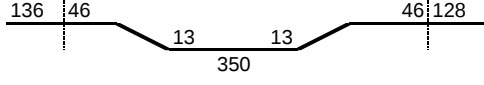
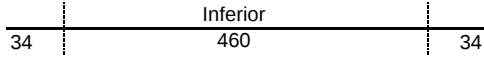
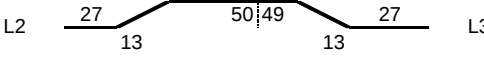
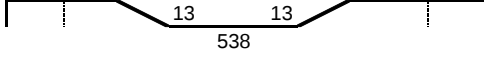
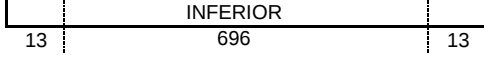
L17				e = 12 cm					
Pos	⬇ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
				Parc.	Tot.	Unitario	total	[kg]	
VER DETALLE DE ARMADO DE LOSAS DE ESCALERA									

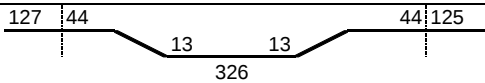
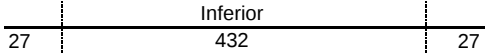
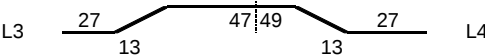
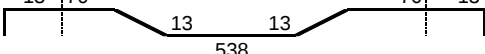
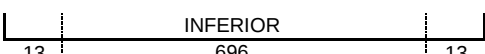
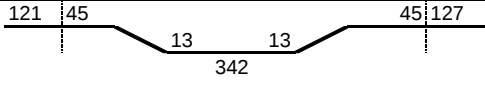
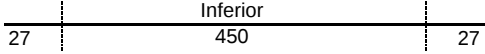
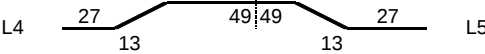
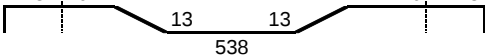
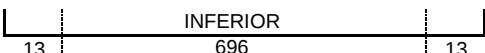
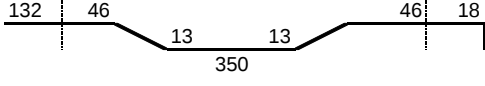
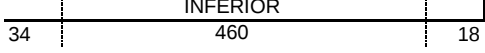
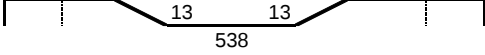
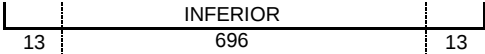


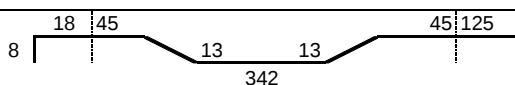
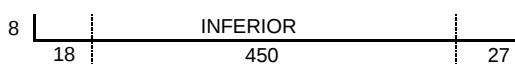
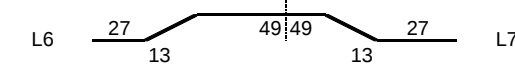
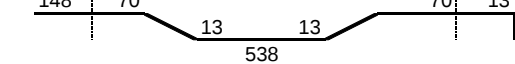
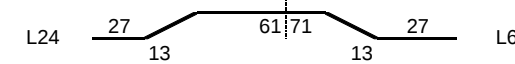
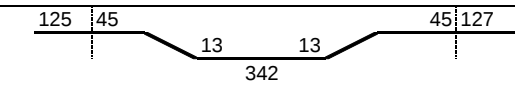
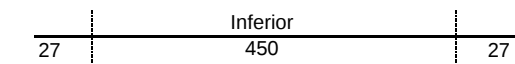
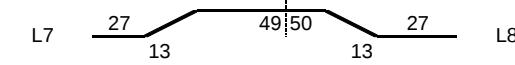
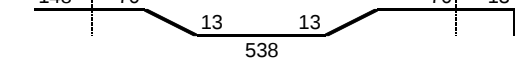
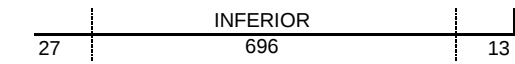
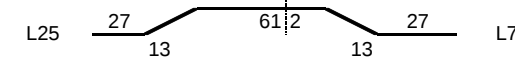
c) Antes de preparar la armadura se deberán verificar todas
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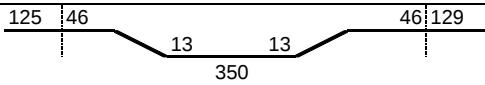
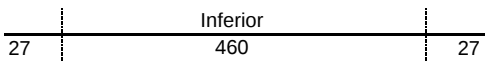
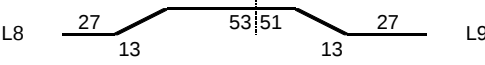
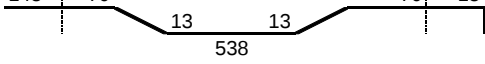
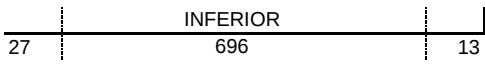
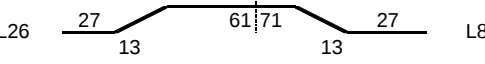
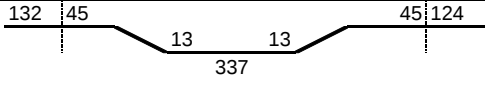
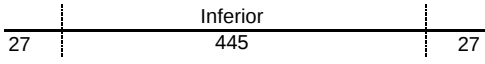
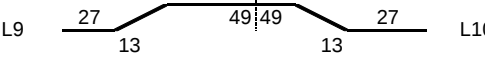
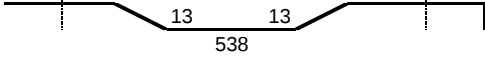
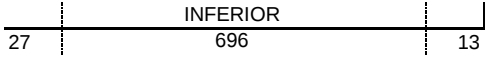
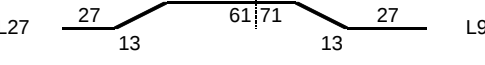
Magma
Doblado Losas PA
Planilla de doblado de hierros

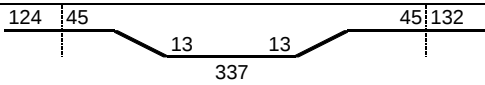
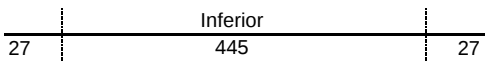
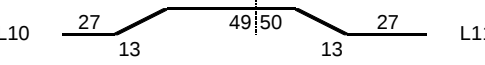
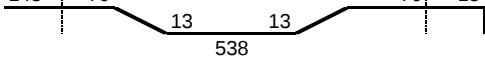
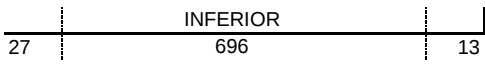
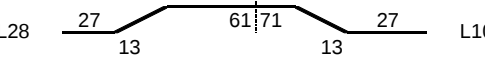
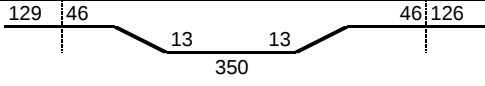
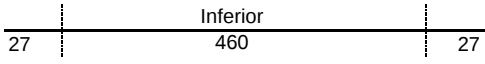
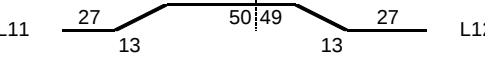
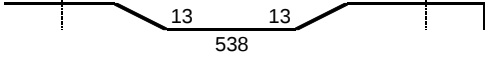
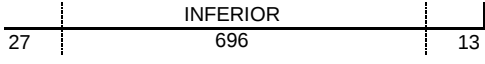
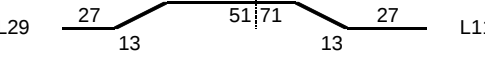
Tensión del hormigón:	300	kg/cm2
Tensión del acero:	4200	kg/cm2
Tensión de adherencia:	18	kg/cm2

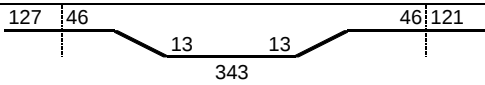
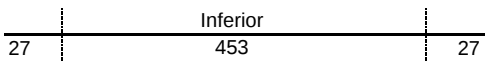
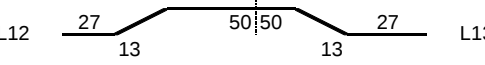
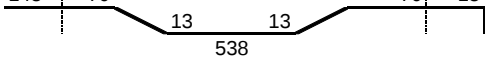
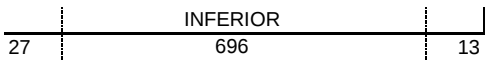
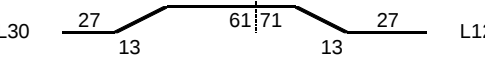
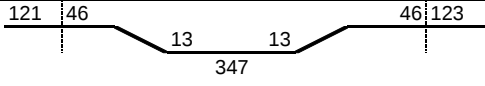
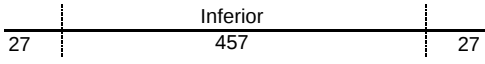
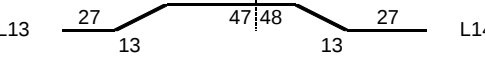
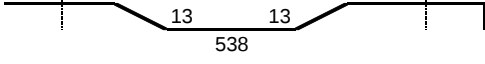
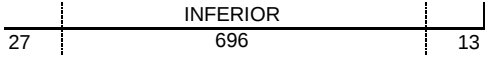
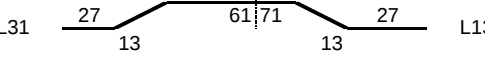
L1			e = 12 cm							
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 302 kg.										
P1 X	Ø10		1	24	24	6.34	152.2	94	sep. 30 cm.	
P2 X	Ø10		1	24	24	5.26	126.2	78	sep. 30 cm.	
P3 X	Ø6		1	35	35	1.67	58.5	13	adicional de apoyo L1 / L2 sep. 20 cm.	
P4 Y	Ø8		1	20	20	7.46	149.2	59	sep. 24 cm.	
P5 Y	Ø8		1	20	20	7.38	147.6	58	sep. 24 cm.	
L2			e = 12 cm							
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 311 kg.										
P1 X	Ø10		1	18	18	7.32	131.8	81	sep. 40 cm.	
P2 X	Ø10		1	18	18	5.28	95.0	59	sep. 40 cm.	
P3 X	Ø8		1	35	35	1.79	62.7	25	adicional de apoyo L2 / L3 sep. 20 cm.	
P4 Y	Ø10		1	16	16	7.48	119.7	74	sep. 30 cm.	
P5 Y	Ø10		1	16	16	7.40	118.4	73	sep. 30 cm.	

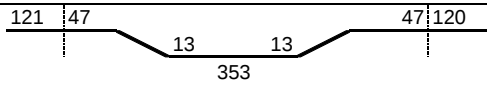
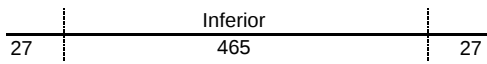
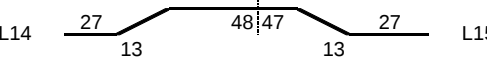
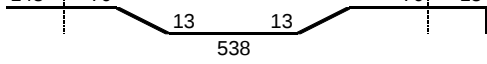
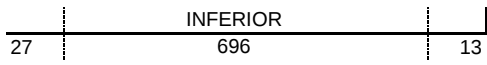
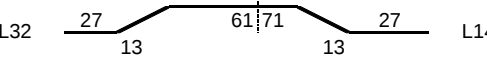
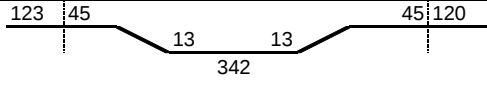
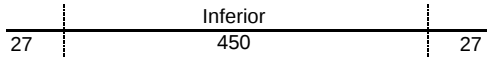
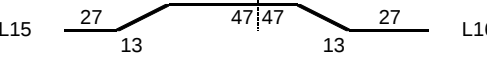
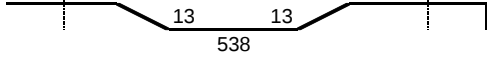
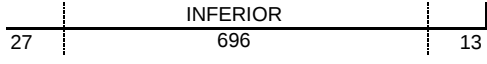
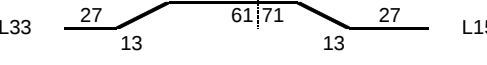
L3				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 275 kg.											
P1 X	Ø8			1	29	29	6.92	200.7	79	sep. 24 cm.	
P2 X	Ø8			1	29	29	4.86	140.9	56	sep. 24 cm.	
P3 X	Ø8			1	50	50	1.76	88.0	35	adicional de apoyo L3 / L4 sep. 14 cm.	
P4 Y	Ø8			1	18	18	7.46	134.3	53	sep. 24 cm.	
P5 Y	Ø8			1	18	18	7.38	132.8	52	sep. 24 cm.	
L4				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 250 kg.											
P1 X	Ø8			1	24	24	7.06	169.4	67	sep. 30 cm.	
P2 X	Ø8			1	24	24	5.04	121.0	48	sep. 30 cm.	
P3 X	Ø8			1	35	35	1.78	62.3	25	adicional de apoyo L4 / L5 sep. 20 cm.	
P4 Y	Ø8			1	19	19	7.46	141.7	56	sep. 24 cm.	
P5 Y	Ø8			1	19	19	7.38	140.2	55	sep. 24 cm.	
L5				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 281 kg.											
P1 X	Ø10			1	24	24	6.27	150.5	93	sep. 30 cm.	
P2 X	Ø10			1	24	24	5.21	125.0	77	sep. 30 cm.	
P3 Y	Ø8			1	19	19	7.46	141.7	56	sep. 24 cm.	
P4 Y	Ø8			1	19	19	7.38	140.2	55	sep. 24 cm.	

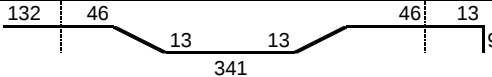
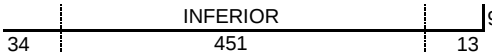
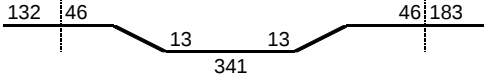
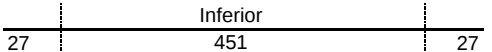
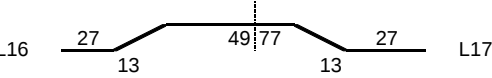
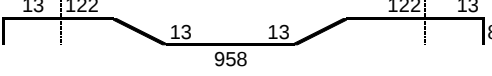
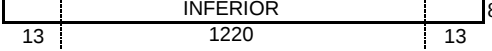
L6				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 303 kg.										
P1 X	Ø8		1	29	29	6.09	176.6	70	sep. 24 cm.	
P2 X	Ø8		1	29	29	5.03	145.9	58	sep. 24 cm.	
P3 X	Ø8		1	50	50	1.78	89.0	35	adicional de apoyo L6 / L7 sep. 14 cm.	
P4 Y	Ø8		1	19	19	8.73	165.9	65	sep. 24 cm.	
P5 Y	Ø8		1	19	19	7.44	141.4	56	sep. 24 cm.	
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L24 / L6 sep. 20 cm.	
L7				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 248 kg.										
P1 X	Ø8		1	24	24	7.10	170.4	67	sep. 30 cm.	
P2 X	Ø8		1	24	24	5.04	121.0	48	sep. 30 cm.	
P3 X	Ø8		1	35	35	1.79	62.7	25	adicional de apoyo L7 / L8 sep. 20 cm.	
P4 Y	Ø8		1	15	15	8.73	131.0	52	sep. 30 cm.	
P5 Y	Ø8		1	15	15	7.44	111.6	44	sep. 30 cm.	
P6 Y	Ø8		1	23	23	1.43	32.9	13	adicional de apoyo L25 / L7 sep. 20 cm.	

L8				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 307 kg.										
P1 X	Ø8		1	29	29	7.22	209.4	83	sep. 24 cm.	
P2 X	Ø8		1	29	29	5.14	149.1	59	sep. 24 cm.	
P3 X	Ø8		1	35	35	1.84	64.4	25	adicional de apoyo L8 / L9 sep. 20 cm.	
P4 Y	Ø8		1	19	19	8.73	165.9	65	sep. 24 cm.	
P5 Y	Ø8		1	19	19	7.44	141.4	56	sep. 24 cm.	
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L26 / L8 sep. 20 cm.	
L9				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 278 kg.										
P1 X	Ø8		1	24	24	7.09	170.2	67	sep. 30 cm.	
P2 X	Ø8		1	24	24	4.99	119.8	47	sep. 30 cm.	
P3 X	Ø8		1	35	35	1.78	62.3	25	adicional de apoyo L9 / L10 sep. 20 cm.	
P4 Y	Ø8		1	19	19	8.73	165.9	65	sep. 24 cm.	
P5 Y	Ø8		1	19	19	7.44	141.4	56	sep. 24 cm.	
P6 Y	Ø8		1	22	22	2.12	46.6	18	adicional de apoyo L27 / L9 sep. 20 cm.	

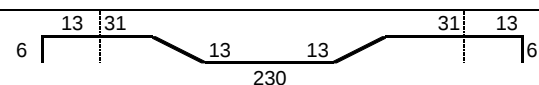
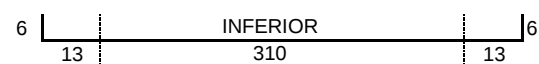
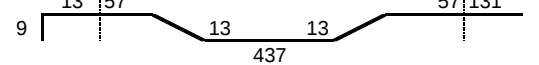
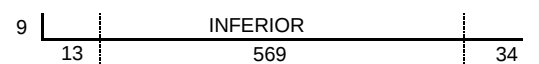
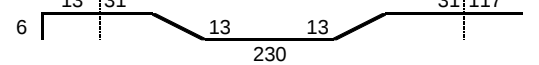
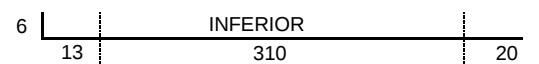
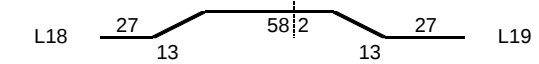
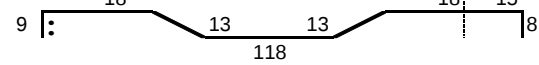
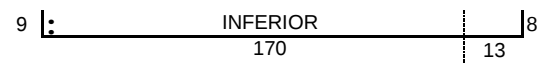
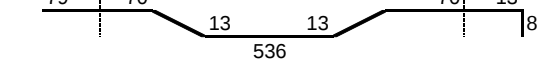
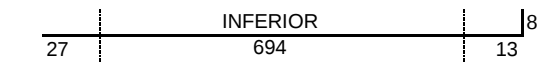
L10				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 279 kg.											
P1 X	Ø8			1	24	24	7.09	170.2	67	sep. 30 cm.	
P2 X	Ø8			1	24	24	4.99	119.8	47	sep. 30 cm.	
P3 X	Ø8			1	35	35	1.79	62.7	25	adicional de apoyo L10 / L11 sep. 20 cm.	
P4 Y	Ø8			1	19	19	8.73	165.9	65	sep. 24 cm.	
P5 Y	Ø8			1	19	19	7.44	141.4	56	sep. 24 cm.	
P6 Y	Ø8			1	22	22	2.12	46.6	18	adicional de apoyo L28 / L10 sep. 20 cm.	
L11				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 285 kg.											
P1 X	Ø8			1	29	29	7.23	209.7	83	sep. 24 cm.	
P2 X	Ø8			1	29	29	5.14	149.1	59	sep. 24 cm.	
P3 X	Ø8			1	35	35	1.79	62.7	25	adicional de apoyo L11 / L12 sep. 20 cm.	
P4 Y	Ø8			1	16	16	8.53	136.5	54	sep. 30 cm.	
P5 Y	Ø8			1	16	16	7.44	119.0	47	sep. 30 cm.	
P6 Y	Ø8			1	23	23	2.02	46.5	18	adicional de apoyo L29 / L11 sep. 20 cm.	

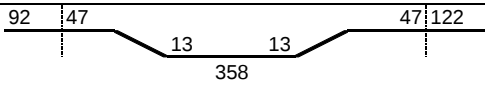
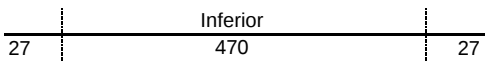
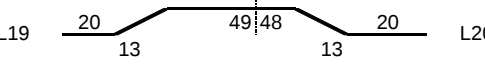
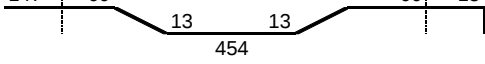
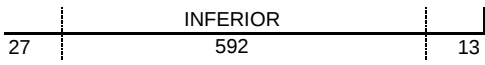
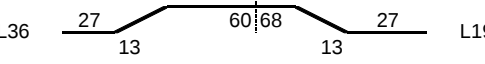
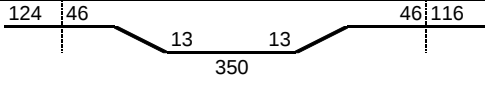
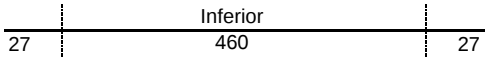
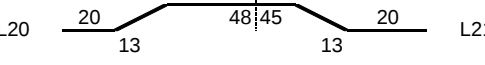
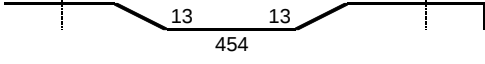
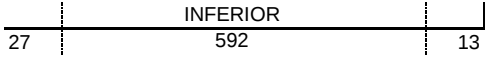
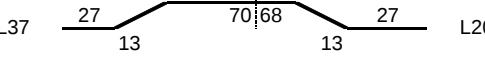
L12				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 207 kg.										
P1 X	Ø8		1	18	18	7.09	127.6	50	sep.	40 cm.
P2 X	Ø8		1	18	18	5.07	91.3	36	sep.	40 cm.
P3 X	Ø8		1	35	35	1.80	63.0	25	adicional de apoyo L12 / L13 sep. 20 cm.	
P4 Y	Ø8		1	12	12	8.73	104.8	41	sep.	40 cm.
P5 Y	Ø8		1	12	12	7.44	89.3	35	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L30 / L12 sep. 20 cm.	
L13				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 207 kg.										
P1 X	Ø8		1	18	18	7.09	127.6	50	sep.	40 cm.
P2 X	Ø8		1	18	18	5.11	92.0	36	sep.	40 cm.
P3 X	Ø8		1	35	35	1.75	61.3	24	adicional de apoyo L13 / L14 sep. 20 cm.	
P4 Y	Ø8		1	12	12	8.73	104.8	41	sep.	40 cm.
P5 Y	Ø8		1	12	12	7.44	89.3	35	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L31 / L13 sep. 20 cm.	

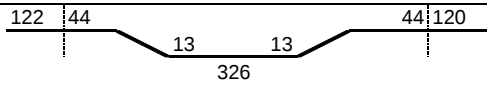
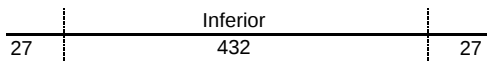
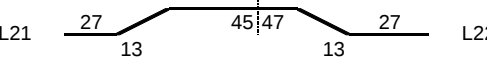
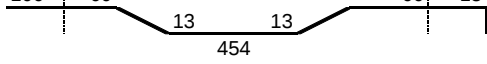
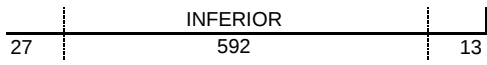
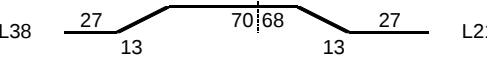
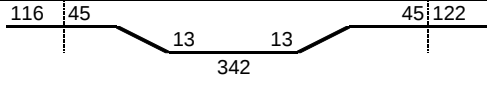
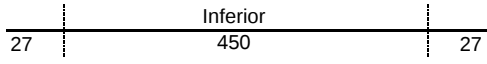
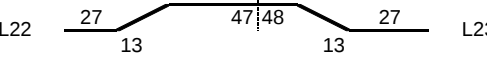
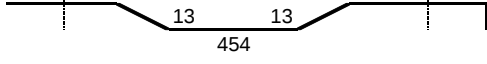
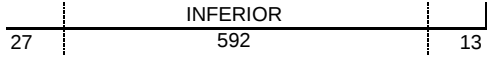
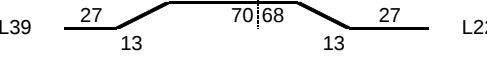
L14				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 207 kg.										
P1 X	Ø8		1	18	18	7.14	128.5	51	sep.	40 cm.
P2 X	Ø8		1	18	18	5.19	93.4	37	sep.	40 cm.
P3 X	Ø8		1	35	35	1.75	61.3	24	adicional de apoyo L14 / L15 sep. 20 cm.	
P4 Y	Ø8		1	12	12	8.73	104.8	41	sep.	40 cm.
P5 Y	Ø8		1	12	12	7.44	89.3	35	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L32 / L14 sep. 20 cm.	
L15				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 234 kg.										
P1 X	Ø8		1	24	24	7.01	168.2	66	sep.	30 cm.
P2 X	Ø8		1	24	24	5.04	121.0	48	sep.	30 cm.
P3 X	Ø8		1	35	35	1.74	60.9	24	adicional de apoyo L15 / L16 sep. 20 cm.	
P4 Y	Ø8		1	12	12	8.73	104.8	41	sep.	40 cm.
P5 Y	Ø8		1	12	12	7.44	89.3	35	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.12	48.8	19	adicional de apoyo L33 / L15 sep. 20 cm.	

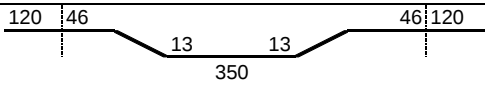
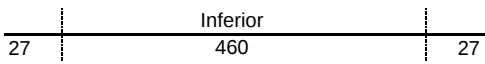
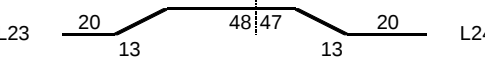
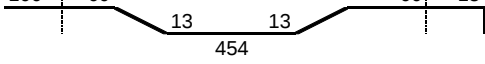
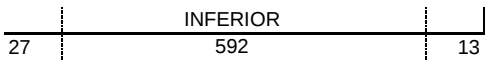
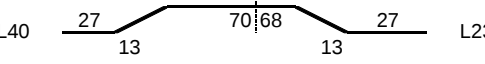
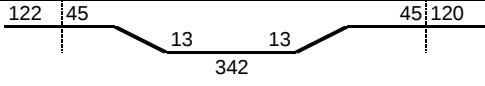
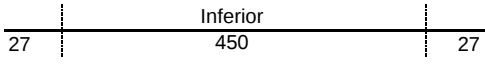
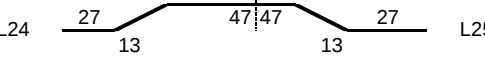
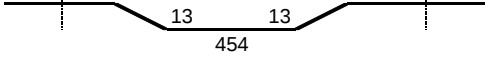
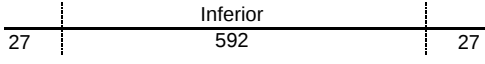
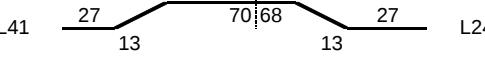
L16				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 541 kg.										
P1 X	Ø10		1	11	11	6.13	67.4	42	sep. 34 cm.	
P2 X	Ø10		1	11	11	5.07	55.8	34	sep. 34 cm.	
P3 X	Ø10		1	56	56	7.74	433.4	267	sep. 15 cm.	
P4 X	Ø8		1	28	28	5.05	141.4	56	sep. 30 cm.	
P5 X	Ø8		1	28	28	2.06	57.7	23	adicional de apoyo L16 / L17 sep. 30 cm.	
P6 Y	Ø8		1	12	12	12.70	152.4	60	sep. 40 cm.	
P7 Y	Ø8		1	12	12	12.62	151.4	60	sep. 40 cm.	

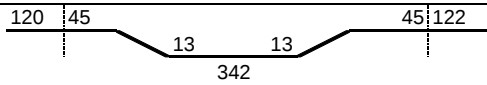
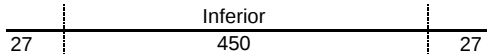
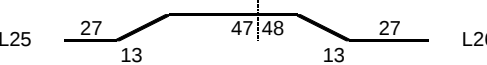
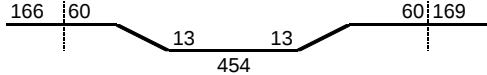
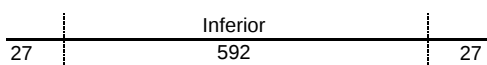
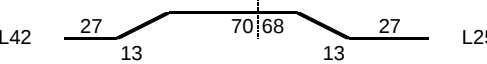
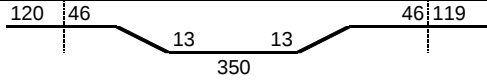
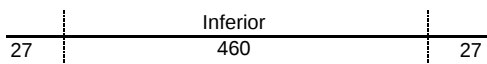
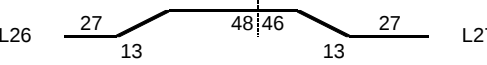
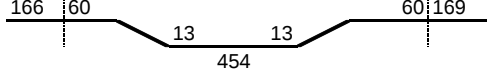
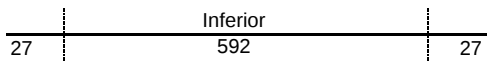
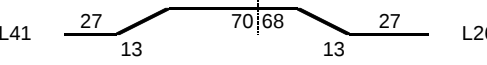
L17				e = 12 cm					
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso [kg]	Observ.
				Parc.	Tot.	Unitario	total		
Total = 1222 kg.									
P1 X	Ø12		1	6	6	5.48	32.9	29	sep. 30 cm.
P2 X	Ø12		1	6	6	5.40	32.4	29	sep. 30 cm.
P3 X	Ø16		1	7	7	5.48	38.4	61	sep. 32 cm.
P4 X	Ø16		1	7	7	5.40	37.8	60	sep. 32 cm.
P5 X	Ø16		1	12	12	9.10	109.2	172	sep. 30 cm.
P6 X	Ø16		1	12	12	8.09	97.1	153	sep. 30 cm.
P7 X	Ø12		1	17	17	8.96	152.3	135	sep. 30 cm.
P8 X	Ø12		1	17	17	7.95	135.2	120	sep. 30 cm.
P9 Y	Ø10		1	10	10	8.77	87.7	54	sep. 24 cm.
P10 Y	Ø10		1	10	10	8.01	80.1	49	sep. 24 cm.
P11 Y	Ø12		1	17	17	12.00	204.0	181	sep. 30 cm.
P12 Y	Ø12		1	17	17	11.84	201.3	179	sep. 30 cm.

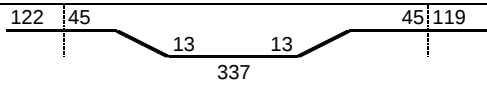
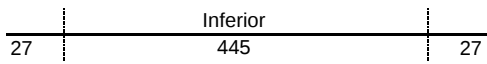
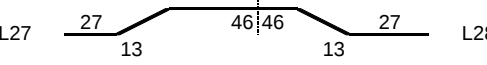
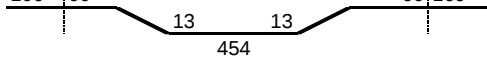
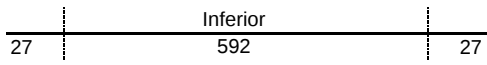
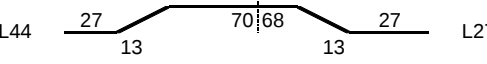
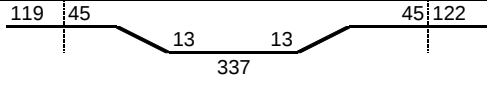
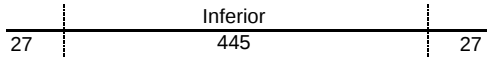
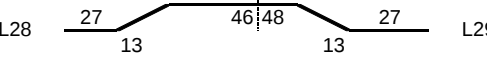
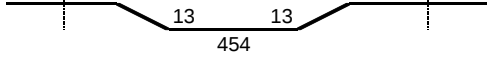
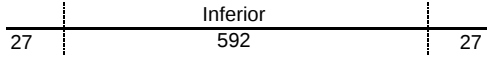
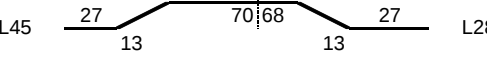
L18				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 156 kg.										
P1 X	Ø6		1	8	8	3.56	28.5	6	sep. 28 cm.	
P2 X	Ø6		1	7	7	3.48	24.4	5	sep. 28 cm.	
P3 X	Ø10		1	7	7	7.30	51.1	31	sep. 24 cm.	
P4 X	Ø10		1	7	7	6.25	43.8	27	sep. 24 cm.	
P5 X	Ø6		1	8	8	4.54	36.3	8	sep. 40 cm.	
P6 X	Ø6		1	8	8	3.49	27.9	6	sep. 40 cm.	
P7 X	Ø8		1	20	20	1.40	28.0	11	adicional de apoyo L18 / L19 sep. 15 cm.	
P8 Y	Ø8	 NOTA: ver plano refuerzos en borde libre.	1	8	8	2.12	17.0	7	sep. 40 cm.	
P9 Y	Ø8	 NOTA: ver plano refuerzos en borde libre.	1	7	7	2.00	14.0	6	sep. 40 cm.	
P10 Y	Ø8		1	8	8	8.02	64.2	25	sep. 40 cm.	
P11 Y	Ø8		1	8	8	7.42	59.4	23	sep. 40 cm.	

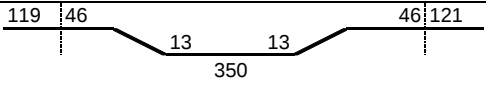
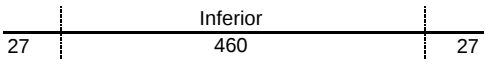
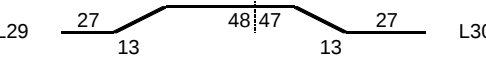
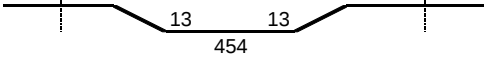
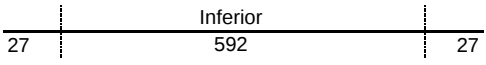
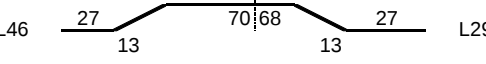
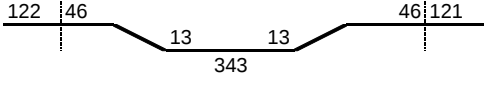
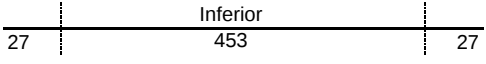
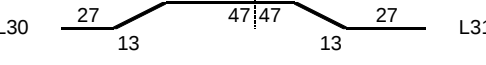
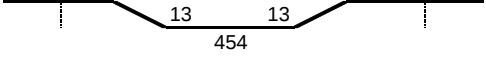
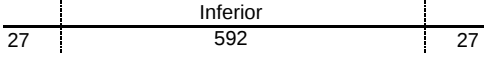
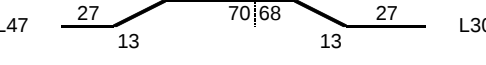
L19				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 239 kg.										
P1 X	Ø8		1	25	25	6.92	173.0	68	sep. 24 cm.	
P2 X	Ø8		1	25	25	5.24	131.0	52	sep. 24 cm.	
P3 X	Ø6		1	30	30	1.63	48.9	11	adicional de apoyo L19 / L20 sep. 20 cm.	
P4 Y	Ø8		1	16	16	7.68	122.9	48	sep. 30 cm.	
P5 Y	Ø8		1	16	16	6.40	102.4	40	sep. 30 cm.	
P6 Y	Ø8		1	24	24	2.08	49.9	20	adicional de apoyo L36 / L19 sep. 20 cm.	
L20				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 224 kg.										
P1 X	Ø8		1	25	25	7.08	177.0	70	sep. 24 cm.	
P2 X	Ø8		1	25	25	5.14	128.5	51	sep. 24 cm.	
P3 X	Ø6		1	30	30	1.59	47.7	11	adicional de apoyo L20 / L21 sep. 20 cm.	
P4 Y	Ø8		1	13	13	7.87	102.3	40	sep. 36 cm.	
P5 Y	Ø8		1	13	13	6.40	83.2	33	sep. 36 cm.	
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L37 / L20 sep. 20 cm.	

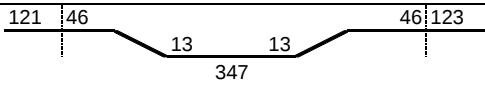
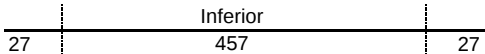
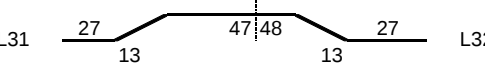
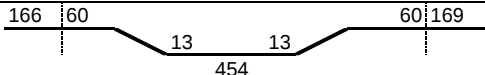
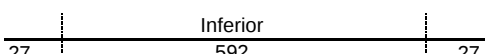
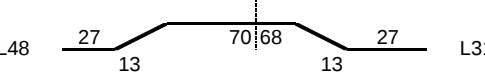
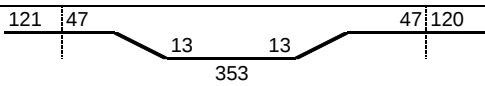
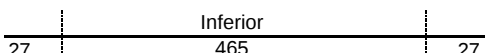
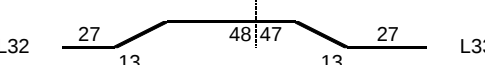
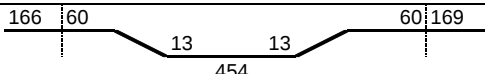
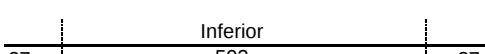
L21				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 170 kg.										
P1 X	Ø8		1	15	15	6.82	102.3	40	sep. 40 cm.	
P2 X	Ø8		1	15	15	4.86	72.9	29	sep. 40 cm.	
P3 X	Ø8		1	30	30	1.72	51.6	20	adicional de apoyo L21 / L22 sep. 20 cm.	
P4 Y	Ø8		1	11	11	7.87	86.6	34	sep. 40 cm.	
P5 Y	Ø8		1	11	11	6.40	70.4	28	sep. 40 cm.	
P6 Y	Ø8		1	22	22	2.18	48.0	19	adicional de apoyo L38 / L21 sep. 20 cm.	
L22				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = #¡REF! kg.										
P1 X	Ø8		1	15	15	6.96	104.4	41	sep. 40 cm.	
P2 X	Ø8		1	15	15	5.04	75.6	30	sep. 40 cm.	
P3 X	Ø8		1	40	40	1.75	70.0	28	adicional de apoyo L22 / L23 sep. 15 cm.	
P4 Y	Ø8		1	12	12	7.87	94.4	37	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.40	76.8	30	sep. 40 cm.	
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L39 / L22 sep. 20 cm.	

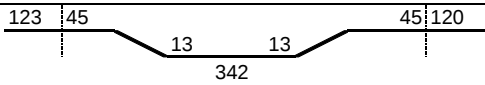
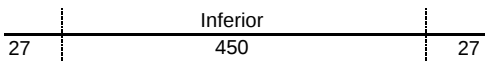
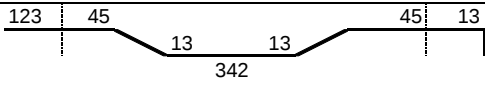
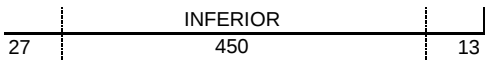
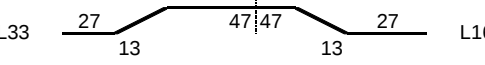
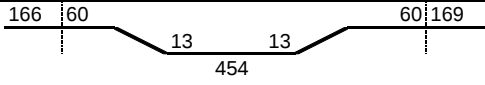
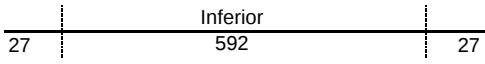
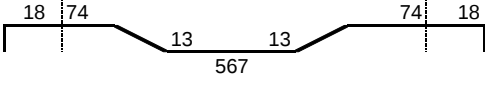
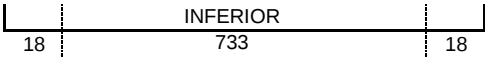
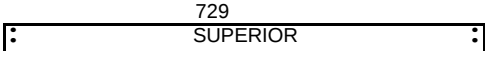
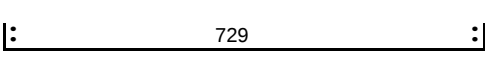
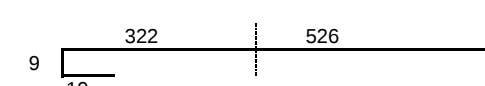
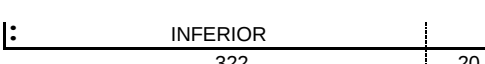
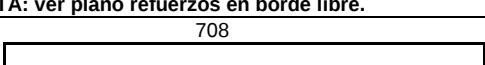
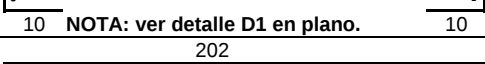
L23				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 182 kg.											
P1 X	Ø8			1	15	15	7.08	106.2	42	sep. 40 cm.	
P2 X	Ø8			1	15	15	5.14	77.1	30	sep. 40 cm.	
P3 X	Ø6			1	30	30	1.61	48.3	11	adicional de apoyo L23 / L24 sep. 20 cm.	
P4 Y	Ø8			1	14	14	7.87	110.2	43	sep. 34 cm.	
P5 Y	Ø8			1	14	14	6.40	89.6	35	sep. 34 cm.	
P6 Y	Ø8			1	23	23	2.18	50.1	20	adicional de apoyo L40 / L23 sep. 20 cm.	
L24				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 186 kg.											
P1 X	Ø8			1	15	15	7.00	105.0	41	sep. 40 cm.	
P2 X	Ø8			1	15	15	5.04	75.6	30	sep. 40 cm.	
P3 X	Ø8			1	30	30	1.74	52.2	21	adicional de apoyo L24 / L25 sep. 20 cm.	
P4 Y	Ø8			1	12	12	9.35	112.2	44	sep. 40 cm.	
P5 Y	Ø8			1	12	12	6.46	77.5	31	sep. 40 cm.	
P6 Y	Ø8			1	23	23	2.18	50.1	20	adicional de apoyo L41 / L24 sep. 20 cm.	

L25				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 187 kg.										
P1 X	Ø8		1	15	15	7.00	105.0	41	sep. 40 cm.	
P2 X	Ø8		1	15	15	5.04	75.6	30	sep. 40 cm.	
P3 X	Ø8		1	30	30	1.75	52.5	21	adicional de apoyo L25 / L26 sep. 20 cm.	
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep. 40 cm.	
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L42 / L25 sep. 20 cm.	
L26				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 197 kg.										
P1 X	Ø8		1	17	17	7.07	120.2	47	sep. 36 cm.	
P2 X	Ø8		1	17	17	5.14	87.4	34	sep. 36 cm.	
P3 X	Ø8		1	30	30	1.74	52.2	21	adicional de apoyo L26 / L27 sep. 20 cm.	
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep. 40 cm.	
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L41 / L26 sep. 20 cm.	

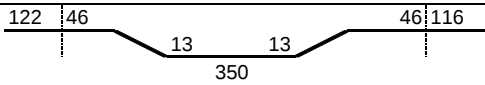
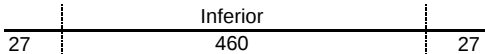
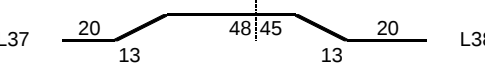
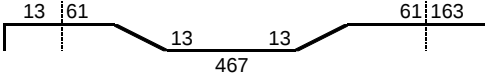
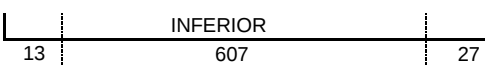
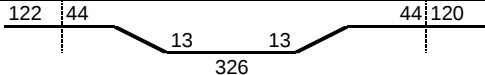
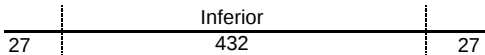
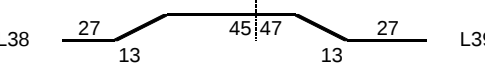
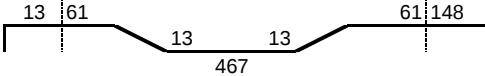
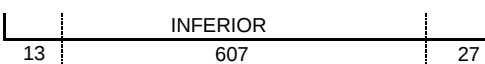
L27				e = 12 cm							
Pos	ϕ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 168 kg.											
P1 X	Ø8			1	17	17	6.94	118.0	47	sep.	36 cm.
P2 X	Ø8			1	17	17	4.99	84.8	33	sep.	36 cm.
P3 X	Ø8			1	30	30	1.72	51.6	20	adicional de apoyo L27 / L28 sep. 20 cm.	
P4 Y	Ø8			1	11	11	9.35	102.9	41	sep.	40 cm.
P5 Y	Ø8			1	11	11	6.46	71.1	28	sep.	40 cm.
P6 Y	Ø8			1	-1	-1	2.18	-2.2	-1	adicional de apoyo L44 / L27 sep. 20 cm.	
L28				e = 12 cm							
Pos	ϕ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 188 kg.											
P1 X	Ø8			1	17	17	6.94	118.0	47	sep.	36 cm.
P2 X	Ø8			1	17	17	4.99	84.8	33	sep.	36 cm.
P3 X	Ø8			1	30	30	1.74	52.2	21	adicional de apoyo L28 / L29 sep. 20 cm.	
P4 Y	Ø8			1	11	11	9.35	102.9	41	sep.	40 cm.
P5 Y	Ø8			1	11	11	6.46	71.1	28	sep.	40 cm.
P6 Y	Ø8			1	22	22	2.18	48.0	19	adicional de apoyo L45 / L28 sep. 20 cm.	

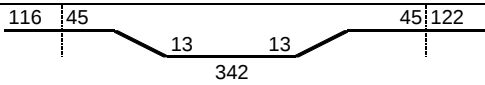
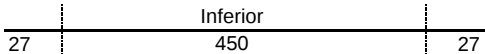
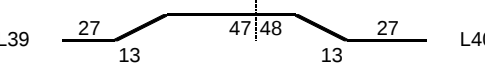
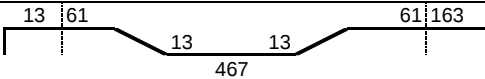
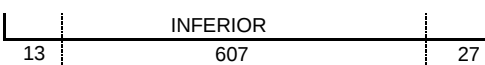
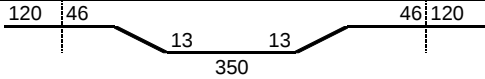
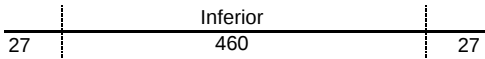
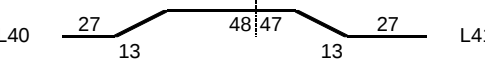
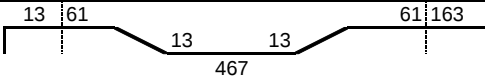
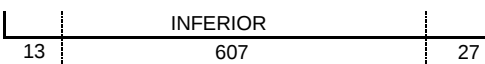
L29				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 197 kg.										
P1 X	Ø8		1	17	17	7.08	120.4	47	sep.	36 cm.
P2 X	Ø8		1	17	17	5.14	87.4	34	sep.	36 cm.
P3 X	Ø8		1	30	30	1.75	52.5	21	adicional de apoyo L29 / L30 sep. 20 cm.	
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep.	40 cm.
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L46 / L29 sep. 20 cm.	
L30				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 187 kg.										
P1 X	Ø8		1	15	15	7.04	105.6	42	sep.	40 cm.
P2 X	Ø8		1	15	15	5.07	76.1	30	sep.	40 cm.
P3 X	Ø8		1	30	30	1.74	52.2	21	adicional de apoyo L30 / L31 sep. 20 cm.	
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep.	40 cm.
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep.	40 cm.
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L47 / L30 sep. 20 cm.	

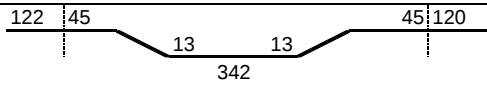
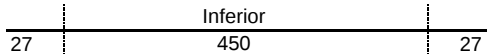
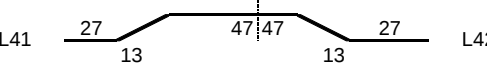
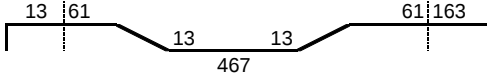
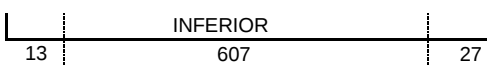
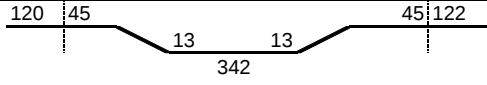
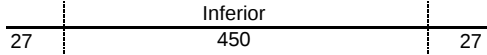
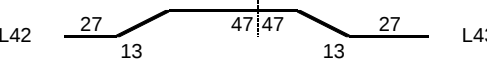
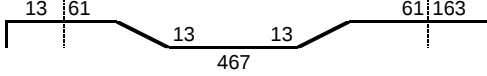
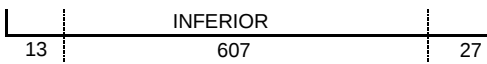
L31				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 202 kg.											
P1 X	Ø8		1	18	18	7.09	127.6	50	sep.	34 cm.	
P2 X	Ø8		1	18	18	5.11	92.0	36	sep.	34 cm.	
P3 X	Ø8		1	30	30	1.75	52.5	21	adicional de apoyo L31 / L32 sep. 20 cm.		
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep.	40 cm.	
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep.	40 cm.	
P6 Y	Ø8		1	23	23	2.18	50.1	20	adicional de apoyo L48 / L31 sep. 20 cm.		
L32				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 183 kg.											
P1 X	Ø8		1	18	18	7.14	128.5	51	sep.	34 cm.	
P2 X	Ø8		1	18	18	5.19	93.4	37	sep.	34 cm.	
P3 X	Ø8		1	30	30	1.75	52.5	21	adicional de apoyo L32 / L33 sep. 20 cm.		
P4 Y	Ø8		1	12	12	9.35	112.2	44	sep.	40 cm.	
P5 Y	Ø8		1	12	12	6.46	77.5	31	sep.	40 cm.	

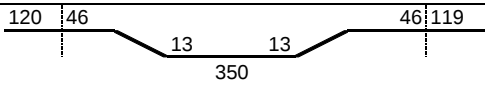
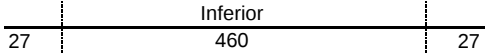
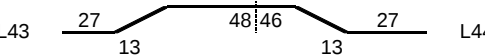
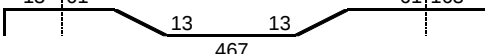
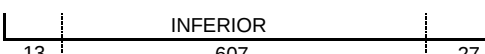
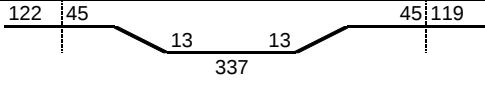
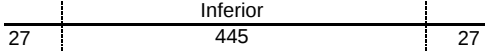
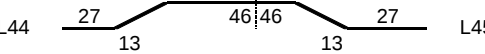
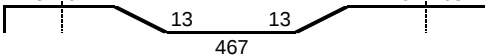
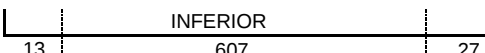
L33				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 178 kg.											
P1 X	Ø8		1	16	16	7.01	112.2	44	sep.	34 cm.	
P2 X	Ø8		1	16	16	5.04	80.6	32	sep.	34 cm.	
P3 X	Ø8		1	2	2	6.02	12.0	5	sep.	34 cm.	
P4 X	Ø8		1	2	2	4.98	10.0	4	sep.	34 cm.	
P5 X	Ø8		1	27	27	1.74	47.0	19	adicional de apoyo L33 / L16 sep. 20 cm.		
P6 Y	Ø8		1	12	12	9.35	112.2	44	sep.	40 cm.	
P7 Y	Ø8		1	12	12	6.46	77.5	31	sep.	40 cm.	
L34				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 714 kg.											
P1 X	Ø12		1	12	12	7.95	95.4	85	sep.	15 cm.	
P2 X	Ø12		1	12	12	7.87	94.4	84	sep.	15 cm.	
P3 X	Ø6	 NOTA: ver plano refuerzos en borde libre.	1	9	9	7.47	67.2	15	sep.	20 cm.	
P4 X	Ø12	 NOTA: ver plano refuerzos en borde libre.	1	12	12	7.47	89.6	80	sep.	15 cm.	
P5 Y	Ø12		1	49	49	8.76	429.2	381	sep.	15 cm.	
P6 Y	Ø6	 NOTA: ver plano refuerzos en borde libre.	1	37	37	3.51	129.9	29	sep.	20 cm.	
REF X	Ø6	 NOTA: ver detalle D1 en plano.	1	11	11	7.82	86.0	19	sep.	20 cm.	
REF Y	Ø6	 NOTA: ver detalle D2 en plano.	1	36	36	2.76	99.4	22	sep.	20 cm.	

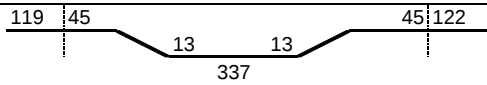
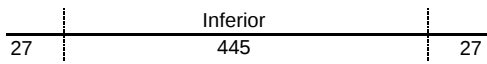
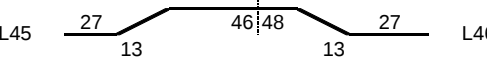
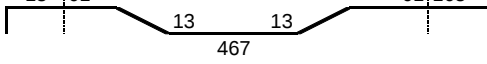
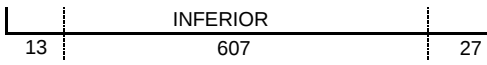
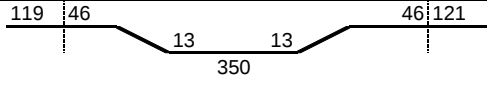
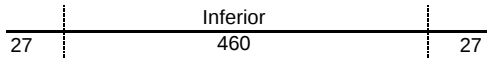
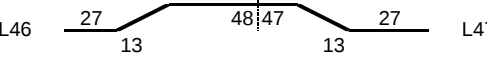
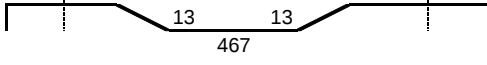
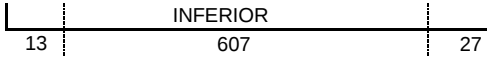
L35				e = 30 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 290 kg.										
P1 X	Ø10		1	16	16	12.97	207.5	128	sep. 15 cm.	
P2 X	Ø8	 NOTA: ver plano refuerzos en borde libre.	1	12	12	5.43	65.2	26	sep. 20 cm.	
P3 Y	Ø6	 NOTA: ver plano refuerzos en borde libre.	1	10	10	2.88	28.8	6	sep. 20 cm.	
P4 Y	Ø8	 NOTA: ver plano refuerzos en borde libre.	1	13	13	2.90	37.7	15	sep. 15 cm.	
P5 Y	Ø10		1	22	22	6.79	149.4	92	sep. 14 cm.	
P6 Y	Ø8	 NOTA: ver plano refuerzos en borde libre.	1	20	20	2.96	59.2	23	sep. 15 cm.	
L36				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 224 kg.										
P1 X	Ø8		1	5	5	7.21	36.1	14	sep. 28 cm.	
P2 X	Ø8		1	5	5	5.14	25.7	10	sep. 28 cm.	
P3 X	Ø10		1	12	12	6.22	74.6	46	sep. 32 cm.	
P4 X	Ø10		1	12	12	5.19	62.3	38	sep. 32 cm.	
P5 X	Ø6		1	26	26	1.62	42.1	9	adicional de apoyo L36 / L37 sep. 20 cm.	
P6 Y	Ø10		1	13	13	7.46	97.0	60	sep. 36 cm.	
P7 Y	Ø10		1	13	13	5.79	75.3	46	sep. 36 cm.	

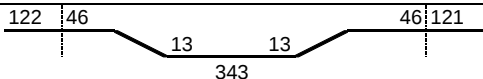
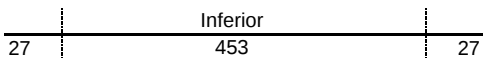
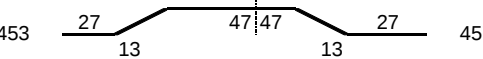
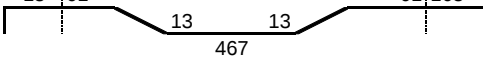
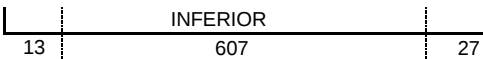
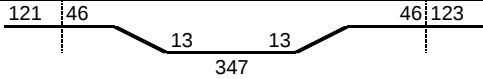
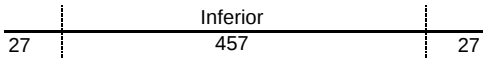
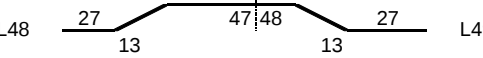
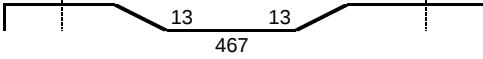
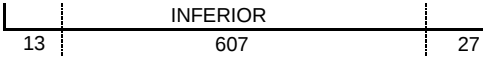
L37				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 204 kg.										
P1 X	Ø8		1	21	21	7.06	148.3	58	sep.	30 cm.
P2 X	Ø8		1	21	21	5.14	107.9	43	sep.	30 cm.
P3 X	Ø6		1	31	31	1.59	49.3	11	adicional de apoyo L37 / L38 sep. 20 cm.	
P4 Y	Ø8		1	16	16	7.99	127.8	50	sep.	30 cm.
P5 Y	Ø8		1	16	16	6.55	104.8	41	sep.	30 cm.
L38				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 162 kg.										
P1 X	Ø8		1	17	17	6.82	115.9	46	sep.	36 cm.
P2 X	Ø8		1	17	17	4.86	82.6	33	sep.	36 cm.
P3 X	Ø8		1	31	31	1.72	53.3	21	adicional de apoyo L38 / L39 sep. 20 cm.	
P4 Y	Ø8		1	11	11	7.84	86.2	34	sep.	40 cm.
P5 Y	Ø8		1	11	11	6.55	72.1	28	sep.	40 cm.

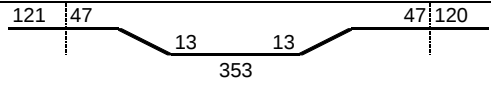
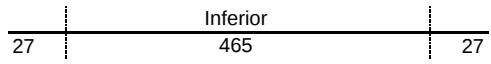
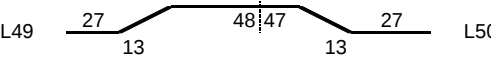
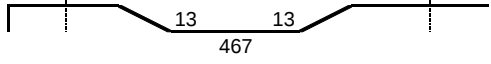
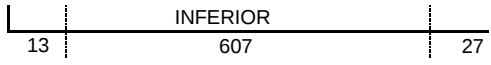
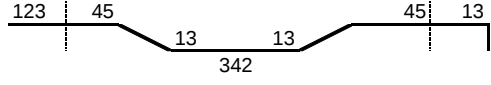
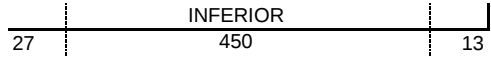
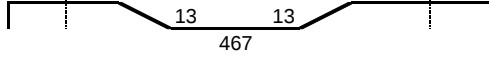
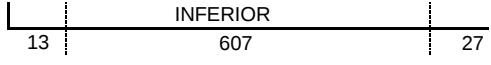
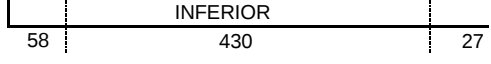
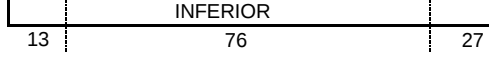
L39				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 171 kg.										
P1 X	Ø8		1	17	17	6.96	118.3	47	sep. 36 cm.	
P2 X	Ø8		1	17	17	5.04	85.7	34	sep. 36 cm.	
P3 X	Ø8		1	31	31	1.75	54.3	21	adicional de apoyo L39 / L40 sep. 20 cm.	
P4 Y	Ø8		1	12	12	7.99	95.9	38	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.55	78.6	31	sep. 40 cm.	
L40				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 191 kg.										
P1 X	Ø8		1	21	21	7.08	148.7	59	sep. 30 cm.	
P2 X	Ø8		1	21	21	5.14	107.9	43	sep. 30 cm.	
P3 X	Ø8		1	31	31	1.75	54.3	21	adicional de apoyo L40 / L41 sep. 20 cm.	
P4 Y	Ø8		1	12	12	7.99	95.9	38	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.55	78.6	31	sep. 40 cm.	

L41				e = 12 cm							
Pos	ϕ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 166 kg.											
P1 X	Ø8			1	16	16	7.00	112.0	44	sep. 40 cm.	
P2 X	Ø8			1	16	16	5.04	80.6	32	sep. 40 cm.	
P3 X	Ø8			1	31	31	1.74	53.9	21	adicional de apoyo L41 / L42 sep. 20 cm.	
P4 Y	Ø8			1	12	12	7.99	95.9	38	sep. 40 cm.	
P5 Y	Ø8			1	12	12	6.55	78.6	31	sep. 40 cm.	
L42				e = 12 cm							
Pos	ϕ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 183 kg.											
P1 X	Ø8			1	16	16	7.00	112.0	44	sep. 40 cm.	
P2 X	Ø8			1	16	16	5.04	80.6	32	sep. 40 cm.	
P3 X	Ø8			1	31	31	1.74	53.9	21	adicional de apoyo L42 / L43 sep. 20 cm.	
P4 Y	Ø8			1	15	15	7.99	119.9	47	sep. 30 cm.	
P5 Y	Ø8			1	15	15	6.55	98.3	39	sep. 30 cm.	

L43				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 190 kg.										
P1 X	Ø8		1	16	16	7.07	113.1	45	sep.	40 cm.
P2 X	Ø8		1	16	16	5.14	82.2	32	sep.	40 cm.
P3 X	Ø8		1	31	31	1.74	53.9	21	adicional de apoyo L43 / L44 sep. 20 cm.	
P4 Y	Ø8		1	16	16	7.99	127.8	50	sep.	30 cm.
P5 Y	Ø8		1	16	16	6.55	104.8	41	sep.	30 cm.
L44				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 182 kg.										
P1 X	Ø8		1	16	16	6.94	111.0	44	sep.	40 cm.
P2 X	Ø8		1	16	16	4.99	79.8	31	sep.	40 cm.
P3 X	Ø8		1	31	31	1.72	53.3	21	adicional de apoyo L44 / L45 sep. 20 cm.	
P4 Y	Ø8		1	15	15	7.99	119.9	47	sep.	30 cm.
P5 Y	Ø8		1	15	15	6.55	98.3	39	sep.	30 cm.

L45				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 183 kg.											
P1 X	Ø8			1	16	16	6.94	111.0	44	sep. 40 cm.	
P2 X	Ø8			1	16	16	4.99	79.8	31	sep. 40 cm.	
P3 X	Ø8			1	31	31	1.74	53.9	21	adicional de apoyo L45 / L46 sep. 20 cm.	
P4 Y	Ø8			1	15	15	7.99	119.9	47	sep. 30 cm.	
P5 Y	Ø8			1	15	15	6.55	98.3	39	sep. 30 cm.	
L46				e = 12 cm							
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
					Parc.	Tot.	Unitario	total	[kg]		
Total = 172 kg.											
P1 X	Ø8			1	17	17	7.08	120.4	47	sep. 36 cm.	
P2 X	Ø8			1	17	17	5.14	87.4	34	sep. 36 cm.	
P3 X	Ø8			1	31	31	1.75	54.3	21	adicional de apoyo L46 / L47 sep. 20 cm.	
P4 Y	Ø8			1	12	12	7.99	95.9	38	sep. 40 cm.	
P5 Y	Ø8			1	12	12	6.55	78.6	31	sep. 40 cm.	

L47				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 167 kg.										
P1 X	Ø8		1	16	16	7.04	112.6	44	sep. 40 cm.	
P2 X	Ø8		1	16	16	5.07	81.1	32	sep. 40 cm.	
P3 X	Ø8		1	31	31	1.74	53.9	21	adicional de apoyo 453 / 457 sep. 20 cm.	
P4 Y	Ø8		1	12	12	7.99	95.9	38	sep. 40 cm.	
P5 Y	Ø8		1	12	12	6.55	78.6	31	sep. 40 cm.	
L48				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 200 kg.										
P1 X	Ø8		1	18	18	7.09	127.6	50	sep. 34 cm.	
P2 X	Ø8		1	18	18	5.11	92.0	36	sep. 34 cm.	
P3 X	Ø8		1	31	31	1.75	54.3	21	adicional de apoyo L48 / L49 sep. 20 cm.	
P4 Y	Ø8		1	16	16	7.99	127.8	50	sep. 30 cm.	
P5 Y	Ø8		1	16	16	6.55	104.8	41	sep. 30 cm.	

L49				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 215 kg.										
P1 X	Ø8		1	21	21	7.14	149.9	59	sep.	30 cm.
P2 X	Ø8		1	21	21	5.19	109.0	43	sep.	30 cm.
P3 X	Ø8		1	31	31	1.75	54.3	21	adicional de apoyo L49 / L50 sep. 20 cm.	
P4 Y	Ø8		1	16	16	7.99	127.8	50	sep.	30 cm.
P5 Y	Ø8		1	16	16	6.55	104.8	41	sep.	30 cm.
L50				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 230 kg.										
P1 X	Ø8		1	28	28	6.02	168.6	66	sep.	22 cm.
P2 X	Ø8		1	28	28	4.98	139.4	55	sep.	22 cm.
P3 Y	Ø8		1	19	19	7.99	151.8	60	sep.	24 cm.
P4 Y	Ø8		1	19	19	6.55	124.5	49	sep.	24 cm.
L51				e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 67 kg.										
P1 X	Ø8		1	5	5	5.23	26.2	10	sep.	16 cm.
P2 X	Ø10		1	5	5	6.26	31.3	19	sep.	16 cm.
P3 Y	Ø8		1	31	31	1.24	38.4	15	sep.	15 cm.
P4 Y	Ø8		1	31	31	1.81	56.1	22	sep.	15 cm.

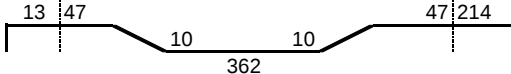
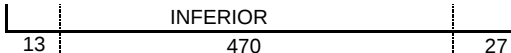
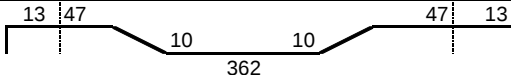
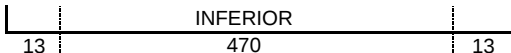
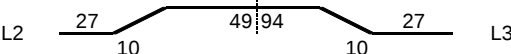
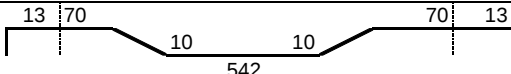
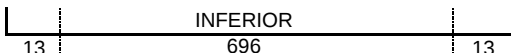
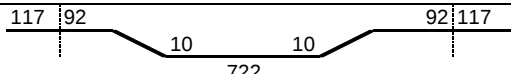
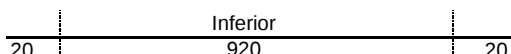
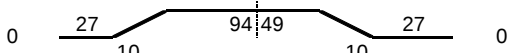
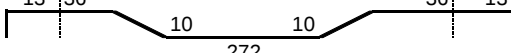
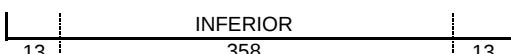


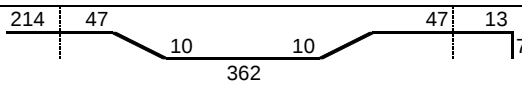
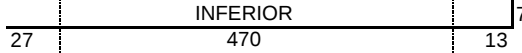
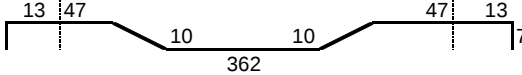
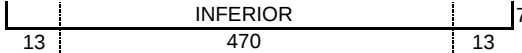
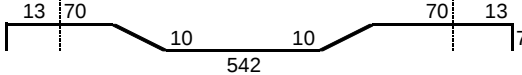
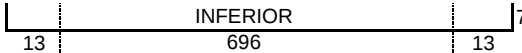
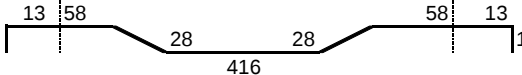
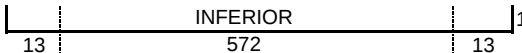
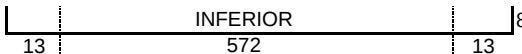
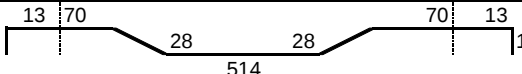
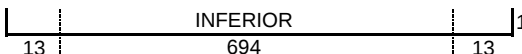
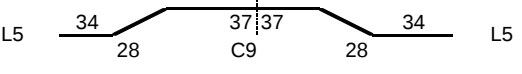
c) Antes de preparar la armadura se deberán verificar todas
las medidas en obra.

MAGMA
Doblado Losas Techos
Planilla de doblado de fierros

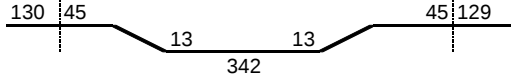
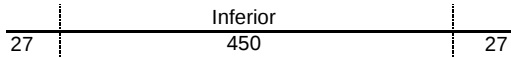
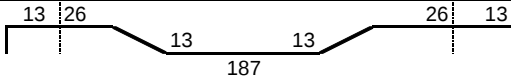
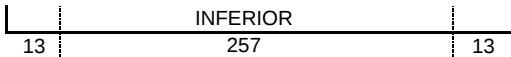
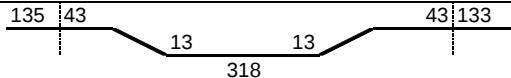
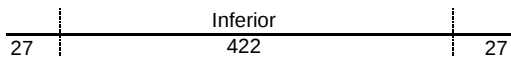
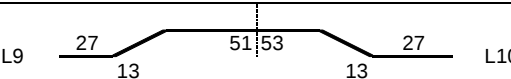
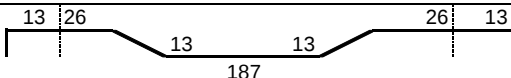
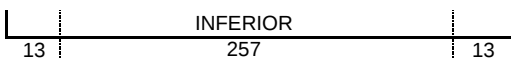
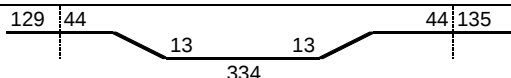
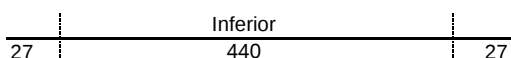
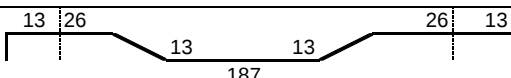
Tensión del hormigón:	300	kg/cm2
Tensión del acero:	4200	kg/cm2
Tensión de adherencia:	18	kg/cm2

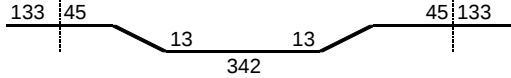
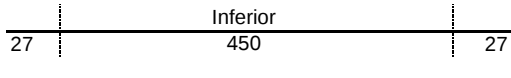
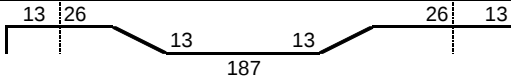
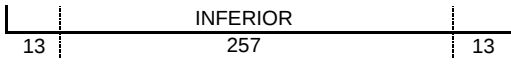
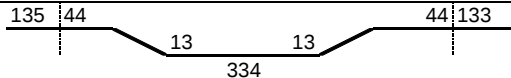
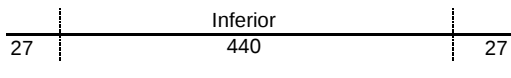
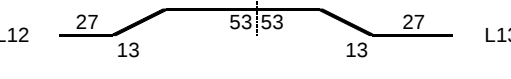
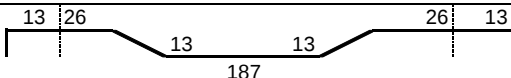
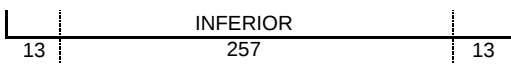
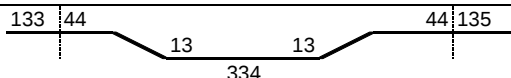
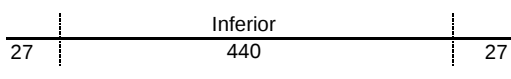
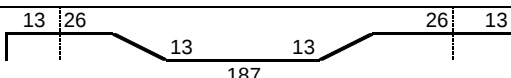
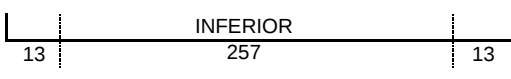
L1			e = 12 cm							
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 1408 kg.										
P1 X	Ø8		1	10	10	8.21	82.1	32	sep. 40 cm.	
P2 X	Ø8		1	10	10	8.17	81.7	32	sep. 40 cm.	
P3 X	Ø8		1	54	54	8.21	443.3	175	sep. 24 cm.	
P4 X	Ø8		1	54	54	8.17	441.2	174	sep. 24 cm.	
P5 X	Ø10		1	27	27	5.47	147.7	91	sep. 15 cm.	
P6 X	Ø10		1	37	37	5.47	202.4	125	sep. 15 cm.	
P7 X	Ø12		1	27	27	5.57	150.4	133	sep. 18 cm.	
P8 X	Ø10		1	17	17	5.47	93.0	57	sep. 15 cm.	
P9 Y	Ø8		1	20	20	7.19	143.8	57	sep. 40 cm.	
P10 Y	Ø8		1	20	20	4.50	90.0	35	sep. 40 cm.	
P11 Y	Ø10		1	28	28	12.00	336.0	207	sep. 28 cm.	
		Longitud de empalme 88 cm. Alternar empalmes	1	28	28	2.85	79.8	0		
P12 Y	Ø10		1	28	28	12.00	336.0	207	sep. 28 cm.	
		Longitud de empalme 88 cm. Alternar empalmes	1	28	28	2.47	69.2	43		
P13 Y	Ø8		1	39	39	2.53	98.7	39	dicional de apoy L1 / L1 sep. 20 cm.	

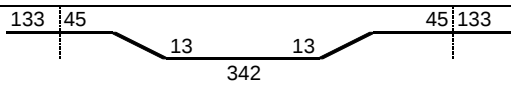
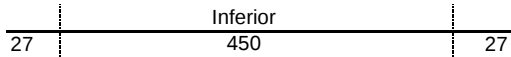
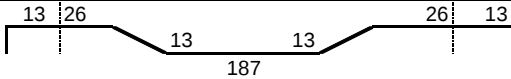
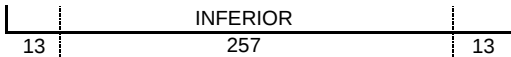
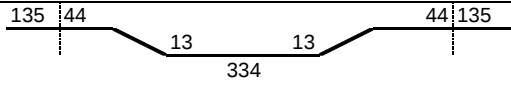
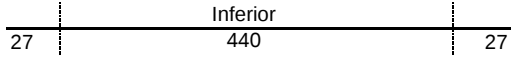
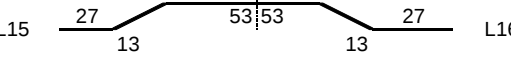
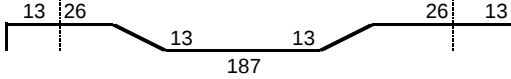
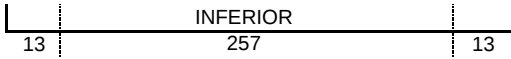
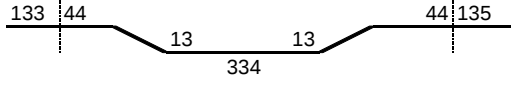
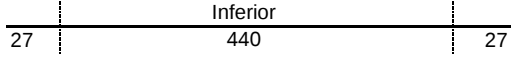
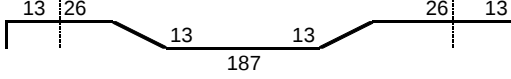
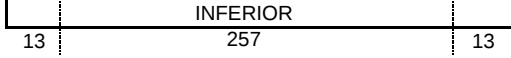
L2				e = 10 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 243 kg.										
P1 X	Ø8			1	15	15	7.10	106.5	42	sep. 24 cm.
P2 X	Ø8			1	15	15	5.17	77.6	31	sep. 24 cm.
P3 X	Ø8			1	14	14	5.16	72.2	28	sep. 24 cm.
P4 X	Ø8			1	14	14	5.10	71.4	28	sep. 24 cm.
P5 X	Ø8			1	24	24	2.17	52.1	21	adicional de apoyo L2 / L3 sep. 15 cm.
P6 Y	Ø8			1	16	16	7.42	118.7	47	sep. 30 cm.
P7 Y	Ø8			1	16	16	7.36	117.8	46	sep. 30 cm.
L3				e = 10 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 191 kg.										
P1 X	Ø6			1	10	10	11.60	116.0	26	sep. 36 cm.
P2 X	Ø6			1	10	10	9.60	96.0	21	sep. 36 cm.
P3 X	Ø8			1	24	24	2.17	52.1	21	adicional de apoyo / sep. 15 cm.
P4 Y	Ø8			1	39	39	4.04	157.6	62	sep. 24 cm.
P5 Y	Ø8			1	39	39	3.98	155.2	61	sep. 24 cm.

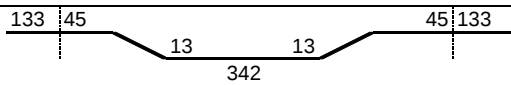
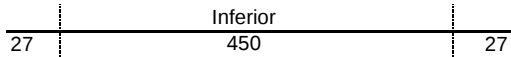
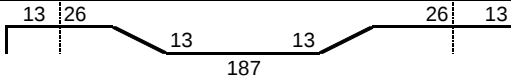
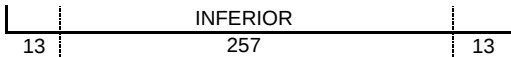
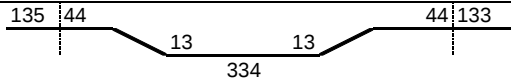
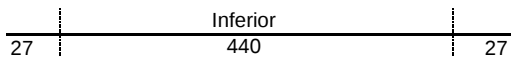
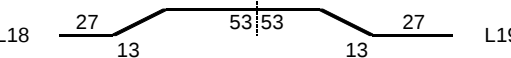
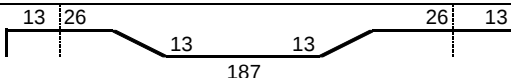
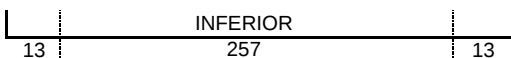
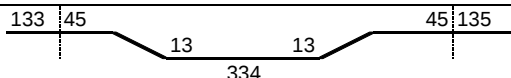
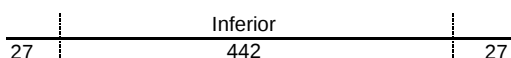
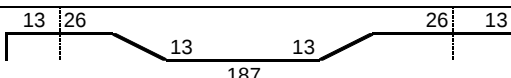
L4				e = 10 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 211 kg.										
P1 X	Ø8			1	15	15	7.10	106.5	42	sep. 24 cm.
P2 X	Ø8			1	15	15	5.17	77.6	31	sep. 24 cm.
P3 X	Ø8			1	14	14	5.16	72.2	28	sep. 24 cm.
P4 X	Ø8			1	14	14	5.10	71.4	28	sep. 24 cm.
P5 Y	Ø8			1	14	14	7.42	103.9	41	sep. 34 cm.
P6 Y	Ø8			1	14	14	7.36	103.0	41	sep. 34 cm.
L5				e = 20 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 451 kg.										
P1 X	Ø10			1	21	21	6.36	133.6	82	sep. 24 cm.
P2 X	Ø10			1	21	21	6.20	130.2	80	sep. 24 cm.
P3 X	Ø8			1	13	13	6.14	79.8	31	sep. 15 cm.
P4 X	Ø8			1	13	13	6.14	79.8	31	sep. 15 cm.
P5 Y	Ø10			1	24	24	7.58	181.9	112	sep. 24 cm.
P6 Y	Ø10			1	24	24	7.42	178.1	110	sep. 24 cm.
Ref X	Ø10			1	3	3	1.98	5.9	4	dicional de apoy L5 / L5 sep. 15 cm.

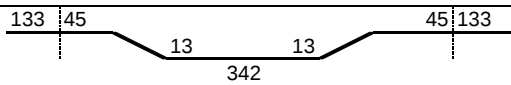
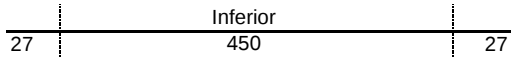
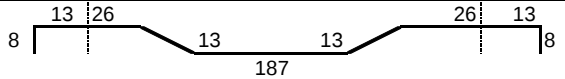
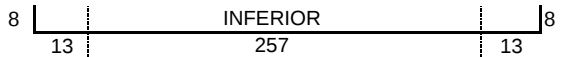
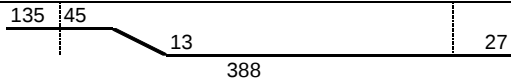
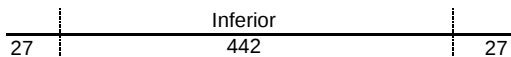
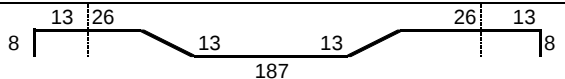
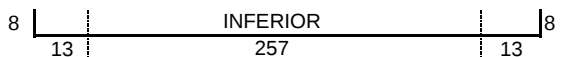
L6					e = 12 cm						
Pos	φ [mm]	FORMA			Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]		
Total = 2894 kg.											
P1 X	Ø10	13 760 13 9 SUPERIOR 9 Disponer en el sector sin huecos. Ajustar separacion respetando cantidad			1	10	10	8.04	80.4	50	sep. 15 cm.
P2 X	Ø10	9 13 760 13 9 INFERIOR 9 Disponer en el sector sin huecos. Ajustar separacion respetando cantidad			1	10	10	8.04	80.4	50	sep. 15 cm.
P3 X	Ø12	1172 9 Disponer en el sector sin huecos. Ajustar separacion respetando cantidad 19			1	15	17	12.00	204.0	181	sep. 15 cm.
P4 X	Ø10	134 760 13 9 INFERIOR 9 Disponer en el sector sin huecos. Ajustar separacion respetando cantidad			1	15	15	9.16	137.4	85	sep. 15 cm.
P5 Y	Ø10	9 408 649 15 Disponer en el sector sin huecos. Ajustar separacion respetando cantidad			1	40	51	10.81	551.3	340	sep. 15 cm.
P6 Y	Ø8	8 13 410 27 INFERIOR Disponer en el sector sin huecos. Ajustar separacion respetando cantidad			1	40	40	4.58	183.2	72	sep. 15 cm.
*VER DETALLE DE ARMADO CAPITEL EN PLANO POSICIONES											
L7					e = 12 cm						
Pos	φ [mm]	FORMA			Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]		
Total = 85 kg.											
P1 X	Ø10	18 43 13 13 43 142 9 319			1	8	8	6.00	48.0	30	sep. 34 cm.
P2 X	Ø10	9 18 423 34 INFERIOR			1	8	8	4.84	38.7	24	sep. 34 cm.
P3 Y	Ø8	13 26 13 13 26 8 187 9 NOTA: ver plano refuerzos en borde libre.			1	14	14	2.95	41.3	16	sep. 30 cm.
P4 Y	Ø8	8 13 255 INFERIOR 9 NOTA: ver plano refuerzos en borde libre.			1	14	14	2.85	39.9	16	sep. 30 cm.

L8					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 62 kg.											
P1 X	Ø8		1	7	7	7.17	50.2	20	sep. 36 cm.		
P2 X	Ø8		1	7	7	5.04	35.3	14	sep. 36 cm.		
P3 Y	Ø8		1	12	12	3.07	36.8	15	sep. 40 cm.		
P4 Y	Ø8		1	12	12	2.99	35.9	14	sep. 40 cm.		
L9					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 71 kg.											
P1 X	Ø8		1	7	7	6.98	48.9	19	sep. 40 cm.		
P2 X	Ø8		1	7	7	4.76	33.3	13	sep. 40 cm.		
P3 X	Ø8		1	17	17	1.84	31.3	12	adicional de apoy L9 / L10 sep. 15 cm.		
P4 Y	Ø8		1	11	11	3.07	33.8	13	sep. 40 cm.		
P5 Y	Ø8		1	11	11	2.99	32.9	13	sep. 40 cm.		
L10					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 60 kg.											
P1 X	Ø8		1	7	7	7.12	49.8	20	sep. 40 cm.		
P2 X	Ø8		1	7	7	4.94	34.6	14	sep. 40 cm.		
P3 Y	Ø8		1	11	11	3.07	33.8	13	sep. 40 cm.		
P4 Y	Ø8		1	11	11	2.99	32.9	13	sep. 40 cm.		

L11					e = 12 cm						
Pos	φ [mm]	FORMA			Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
						Parc.	Tot.	Unitario	total	[kg]	
Total = 63 kg.											
P1 X	Ø8				1	7	7	7.24	50.7	20	sep. 40 cm.
P2 X	Ø8				1	7	7	5.04	35.3	14	sep. 40 cm.
P3 Y	Ø8				1	12	12	3.07	36.8	15	sep. 40 cm.
P4 Y	Ø8				1	12	12	2.99	35.9	14	sep. 40 cm.
L12					e = 12 cm						
Pos	φ [mm]	FORMA			Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
						Parc.	Tot.	Unitario	total	[kg]	
Total = 72 kg.											
P1 X	Ø8				1	7	7	7.16	50.1	20	sep. 40 cm.
P2 X	Ø8				1	7	7	4.94	34.6	14	sep. 40 cm.
P3 X	Ø8				1	17	17	1.86	31.6	12	adicional de apoy L12 / L13 sep. 15 cm.
P4 Y	Ø8				1	11	11	3.07	33.8	13	sep. 40 cm.
P5 Y	Ø8				1	11	11	2.99	32.9	13	sep. 40 cm.
L13					e = 12 cm						
Pos	φ [mm]	FORMA			Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
						Parc.	Tot.	Unitario	total	[kg]	
Total = 60 kg.											
P1 X	Ø8				1	7	7	7.16	50.1	20	sep. 40 cm.
P2 X	Ø8				1	7	7	4.94	34.6	14	sep. 40 cm.
P3 Y	Ø8				1	11	11	3.07	33.8	13	sep. 40 cm.
P4 Y	Ø8				1	11	11	2.99	32.9	13	sep. 40 cm.

L14				e = 12 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 63 kg.										
P1 X	Ø8			1	7	7	7.24	50.7	20	sep. 40 cm.
P2 X	Ø8			1	7	7	5.04	35.3	14	sep. 40 cm.
P3 Y	Ø8			1	12	12	3.07	36.8	15	sep. 40 cm.
P4 Y	Ø8			1	12	12	2.99	35.9	14	sep. 40 cm.
L15				e = 12 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 72 kg.										
P1 X	Ø8			1	7	7	7.18	50.3	20	sep. 40 cm.
P2 X	Ø8			1	7	7	4.94	34.6	14	sep. 40 cm.
P3 X	Ø8			1	17	17	1.86	31.6	12	adicional de apoy L15 / L16 sep. 15 cm.
P4 Y	Ø8			1	11	11	3.07	33.8	13	sep. 40 cm.
P5 Y	Ø8			1	11	11	2.99	32.9	13	sep. 40 cm.
L16				e = 12 cm						
Pos	φ [mm]	FORMA		Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.
					Parc.	Tot.	Unitario	total	[kg]	
Total = 60 kg.										
P1 X	Ø8			1	7	7	7.16	50.1	20	sep. 40 cm.
P2 X	Ø8			1	7	7	4.94	34.6	14	sep. 40 cm.
P3 Y	Ø8			1	11	11	3.07	33.8	13	sep. 40 cm.
P4 Y	Ø8			1	11	11	2.99	32.9	13	sep. 40 cm.

L17					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 60 kg.											
P1 X	Ø8		1	7	7	7.24	50.7	20	sep. 40 cm.		
P2 X	Ø8		1	7	7	5.04	35.3	14	sep. 40 cm.		
P3 Y	Ø8		1	11	11	3.07	33.8	13	sep. 40 cm.		
P4 Y	Ø8		1	11	11	2.99	32.9	13	sep. 40 cm.		
L18					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 72 kg.											
P1 X	Ø8		1	7	7	7.16	50.1	20	sep. 40 cm.		
P2 X	Ø8		1	7	7	4.94	34.6	14	sep. 40 cm.		
P3 X	Ø8		1	17	17	1.86	31.6	12	adicional de apoyo L18 / L19 sep. 15 cm.		
P4 Y	Ø8		1	11	11	3.07	33.8	13	sep. 40 cm.		
P5 Y	Ø8		1	11	11	2.99	32.9	13	sep. 40 cm.		
L19					e = 12 cm						
Pos	φ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.		
				Parc.	Tot.	Unitario	total	[kg]			
Total = 60 kg.											
P1 X	Ø8		1	7	7	7.18	50.3	20	sep. 40 cm.		
P2 X	Ø8		1	7	7	4.96	34.7	14	sep. 40 cm.		
P3 Y	Ø8		1	11	11	3.07	33.8	13	sep. 40 cm.		
P4 Y	Ø8		1	11	11	2.99	32.9	13	sep. 40 cm.		

L20			e = 12 cm							
Pos	ϕ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 72 kg.										
P1 X	Ø8		1	9	9	7.24	65.2	26	sep. 30 cm.	
P2 X	Ø8		1	9	9	5.04	45.4	18	sep. 30 cm.	
P3 Y	Ø8		1	12	12	3.07	36.8	15	sep. 40 cm.	
P4 Y	Ø8		1	12	12	2.99	35.9	14	sep. 40 cm.	
L21			e = 12 cm							
Pos	ϕ [mm]	FORMA	Cant. elem.	Cant.		LONGITUD [m]		Peso	Observ.	
				Parc.	Tot.	Unitario	total	[kg]		
Total = 127 kg.										
P1 X	Ø8		1	17	17	6.08	103.4	41	sep. 15 cm.	
P2 X	Ø8		1	17	17	4.96	84.3	33	sep. 15 cm.	
P3 Y	Ø8		1	22	22	3.07	67.5	27	sep. 20 cm.	
P4 Y	Ø8		1	22	22	2.99	65.8	26	sep. 20 cm.	