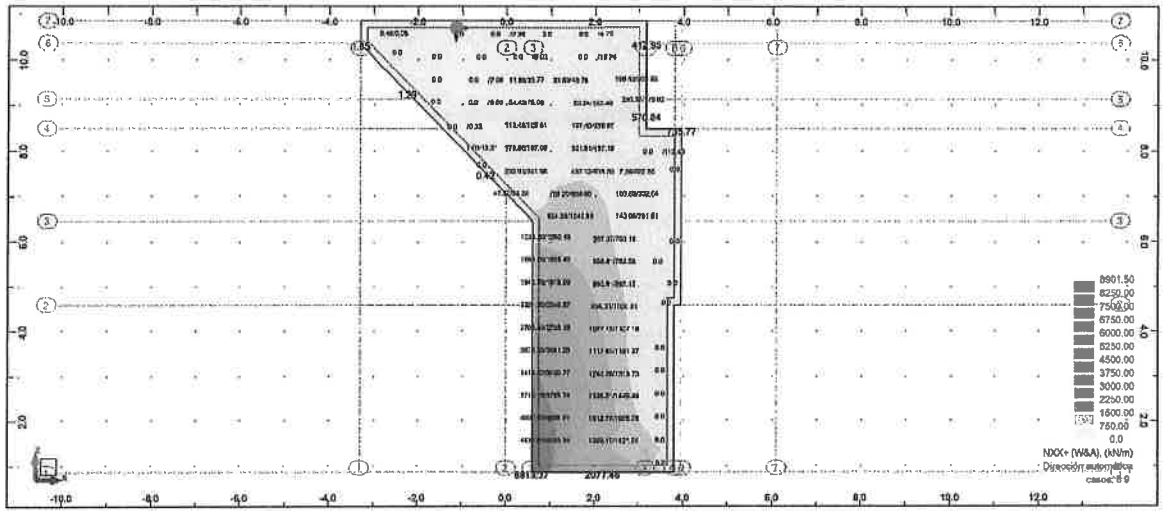
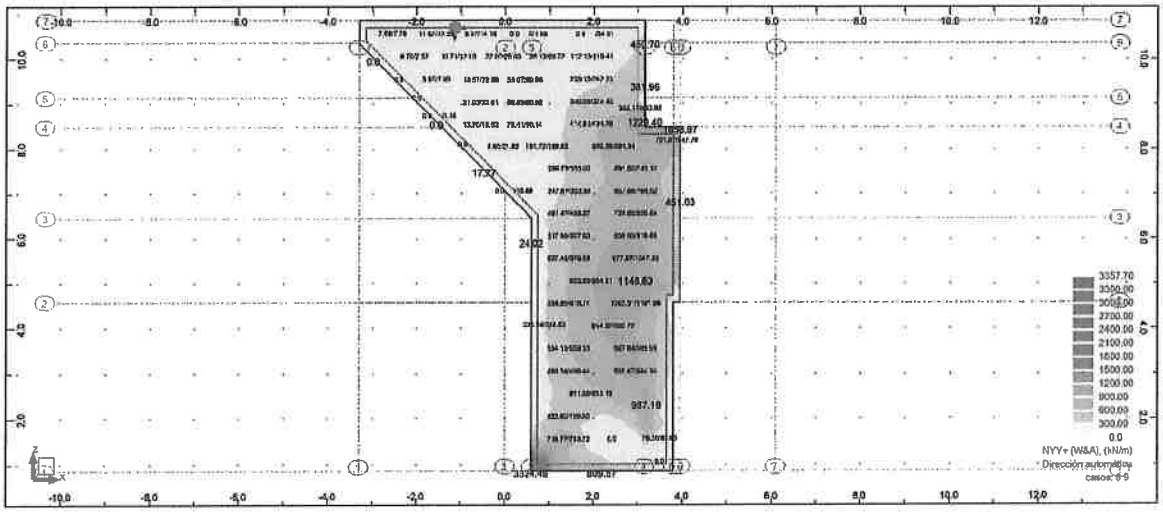
Tracción Nxx



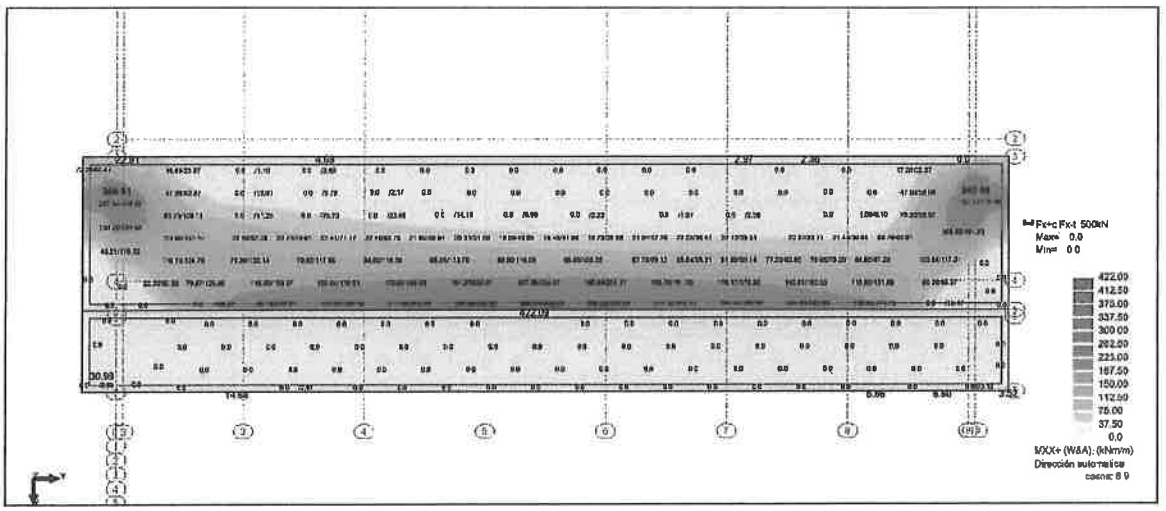
Tracción Nyy



F - DISEÑO DE ESTRIBO 2

F.1 - ZAPATA

Momento flector Mxx+



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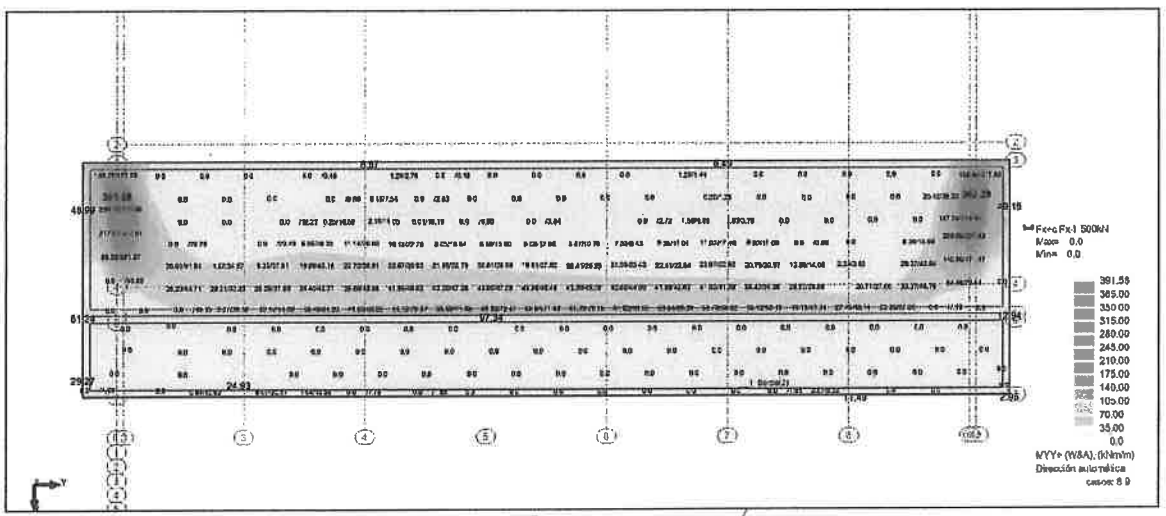
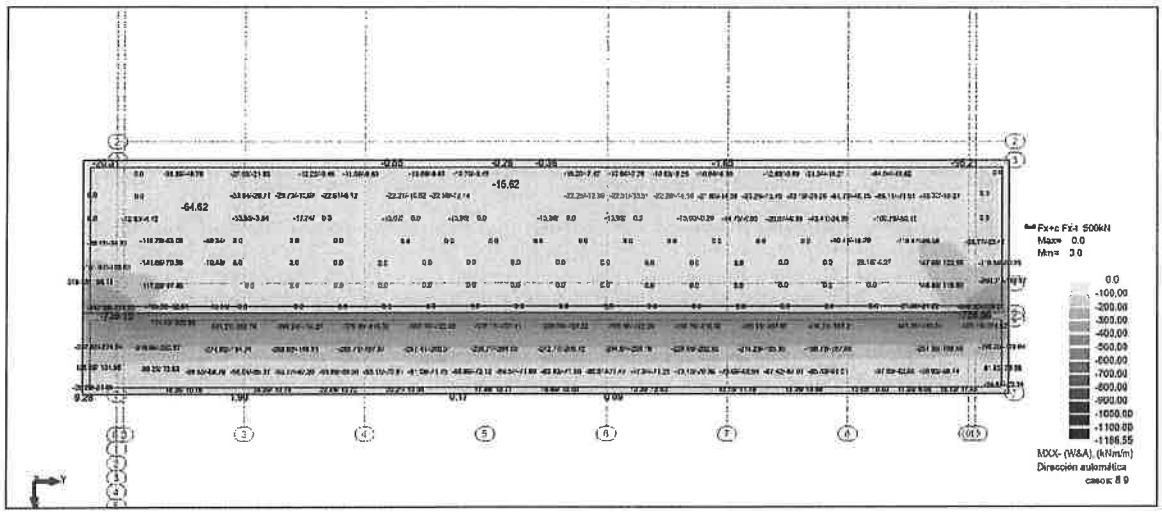


Momento flector Mxx-



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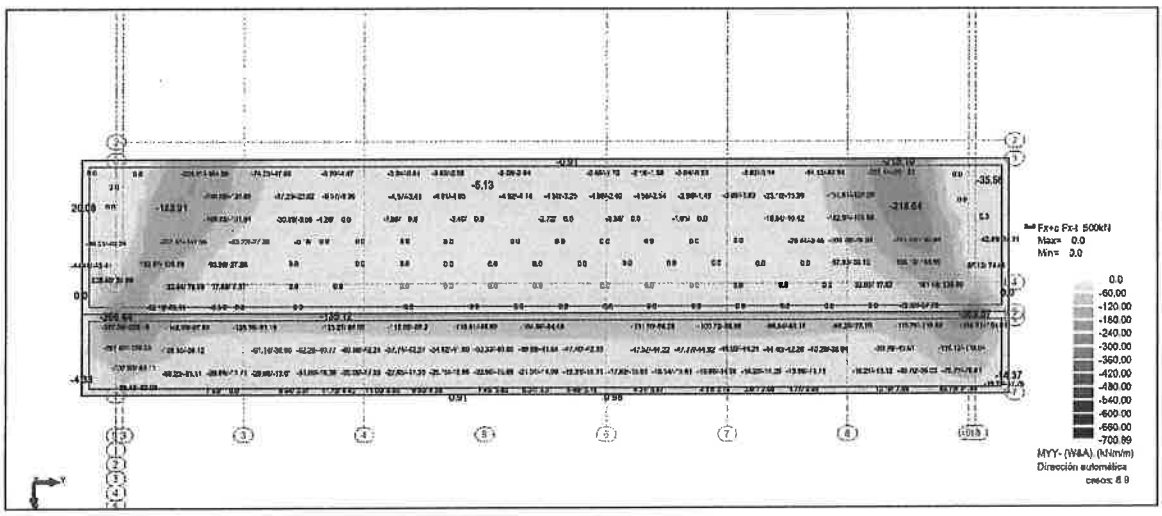
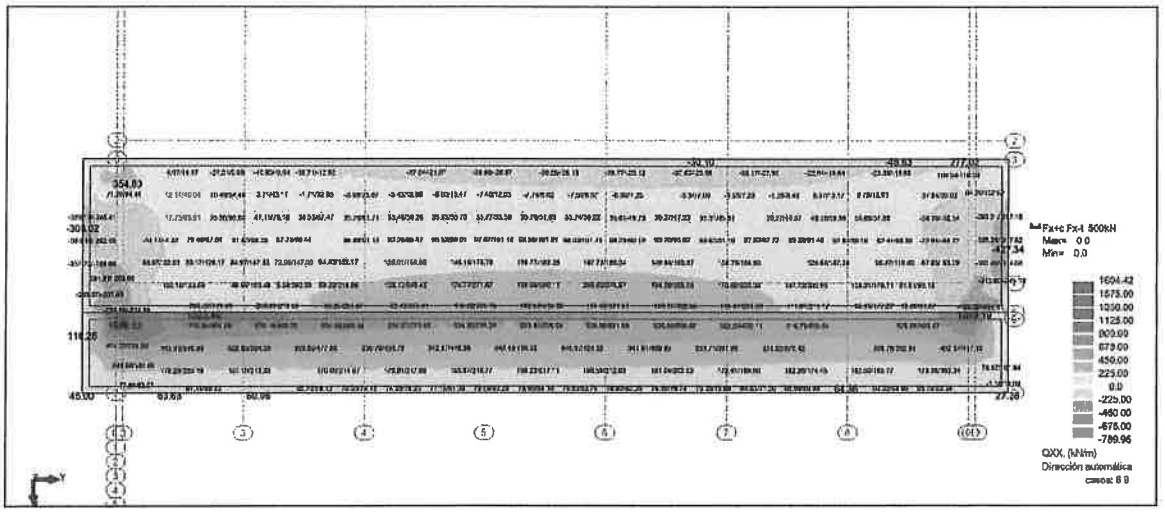
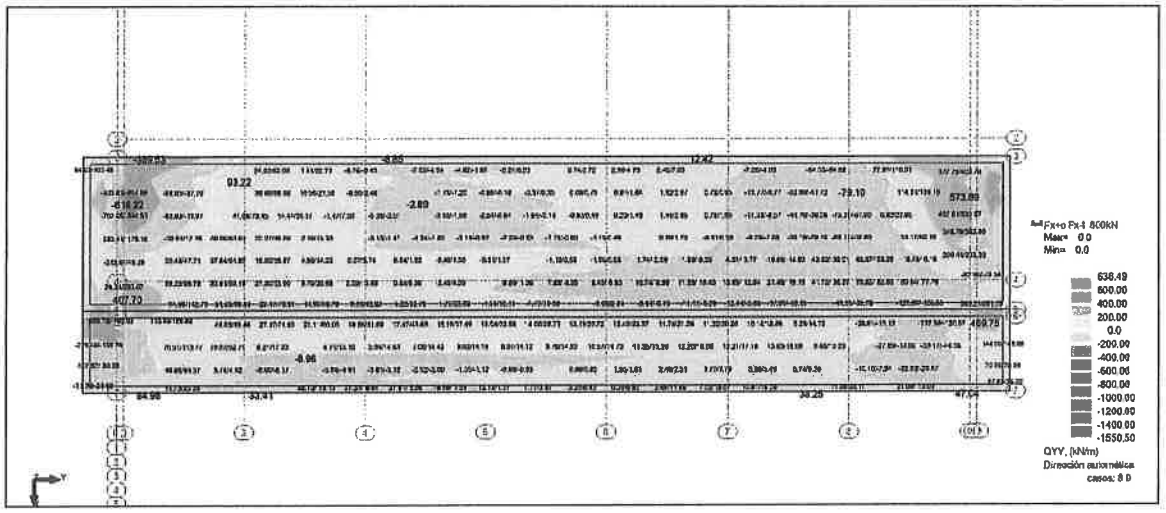


Cortante Qx

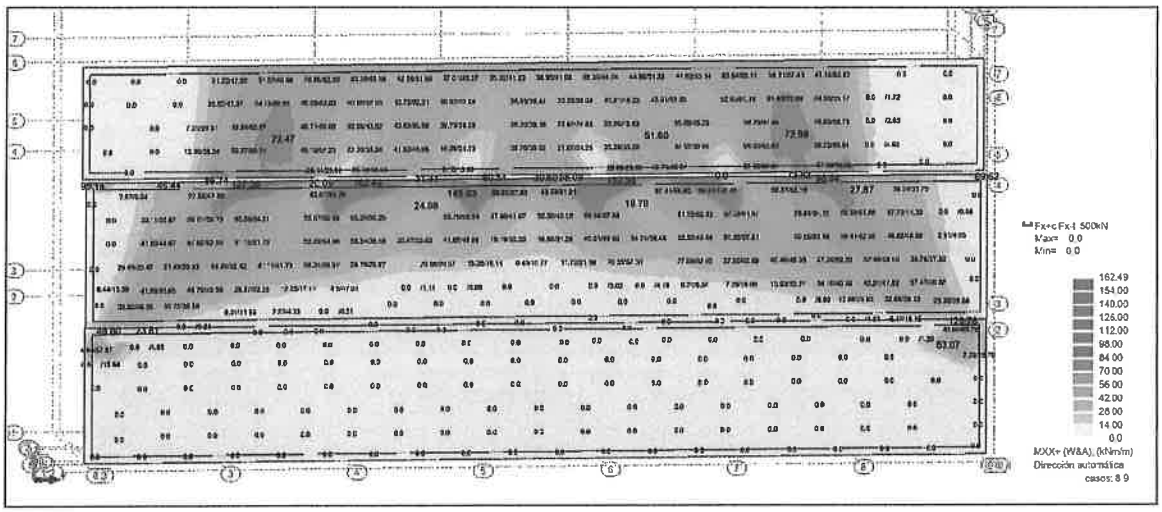


Cortante Qy

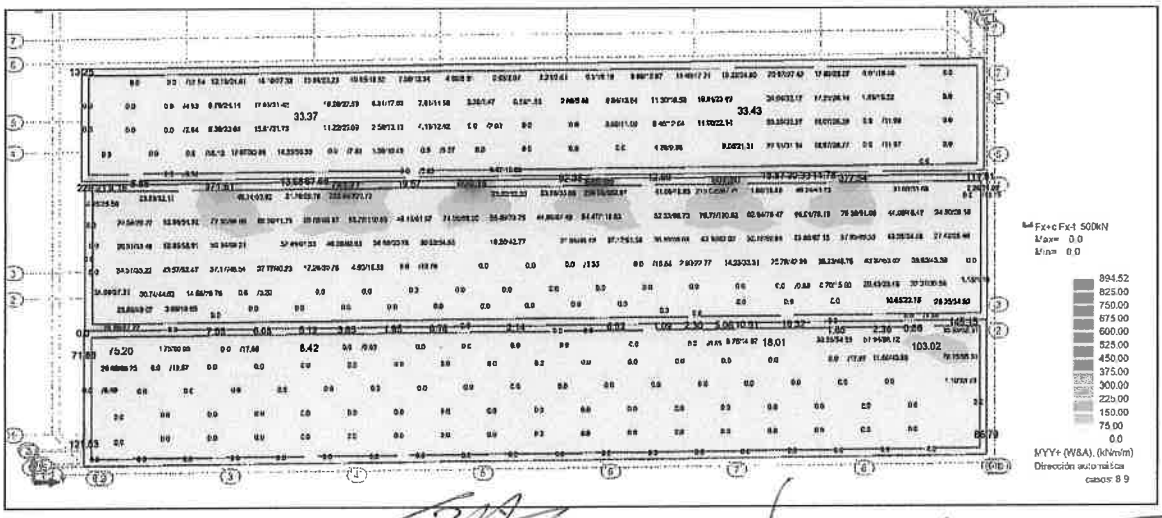


F.2 - MURO FRONTAL

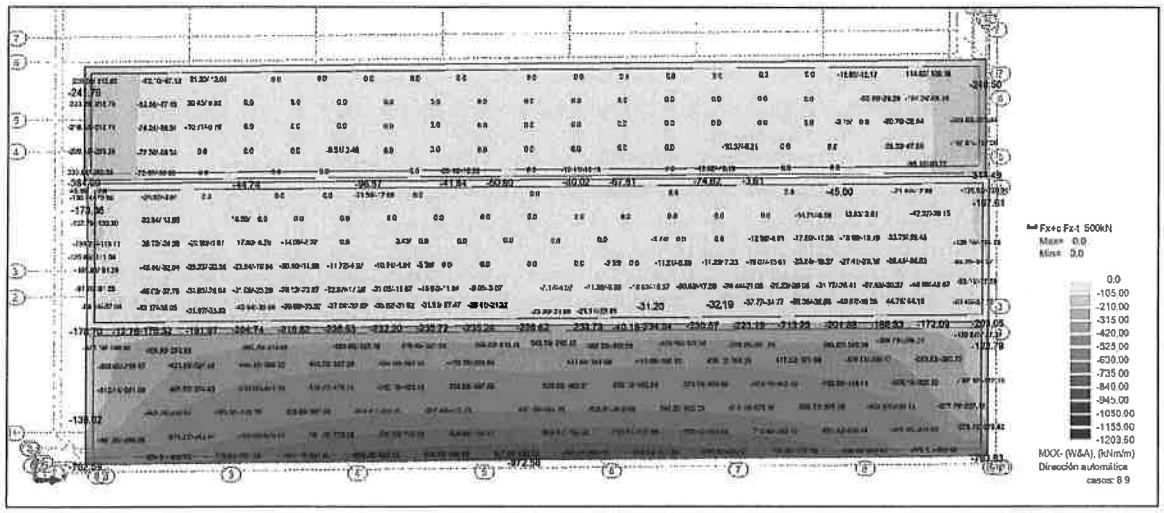
Momento Mxx+



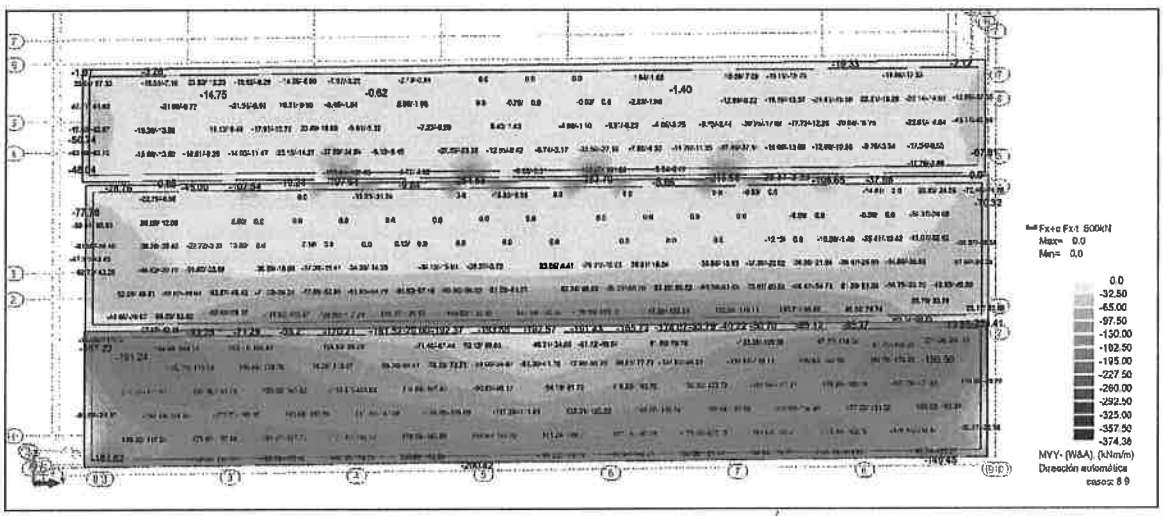
Momento Myy+



Momento Mxx-

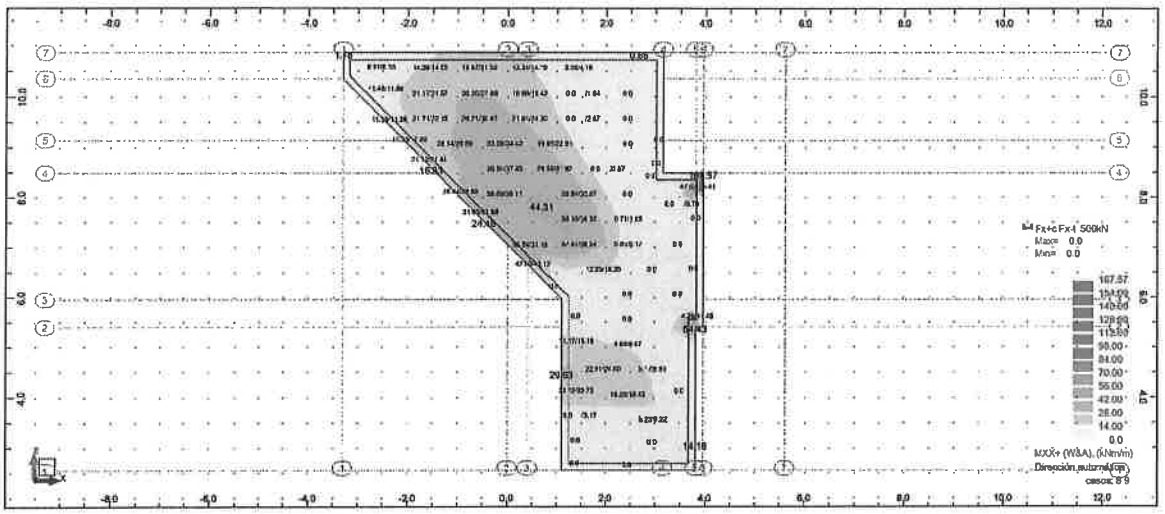


Momento Myy-

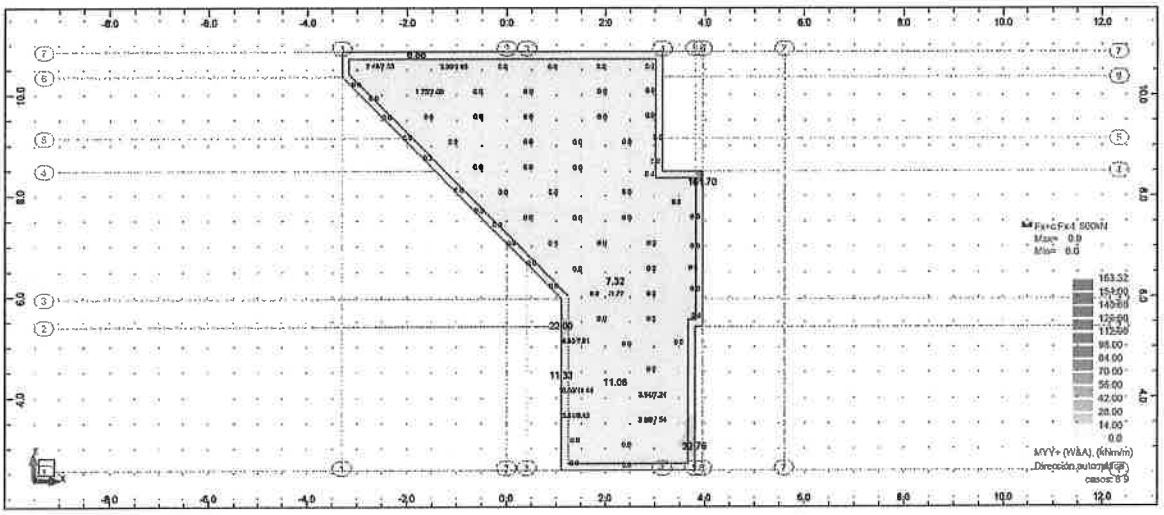


F.3 – ALETAS

Momento flector Mxx+



Momento flector Myy+



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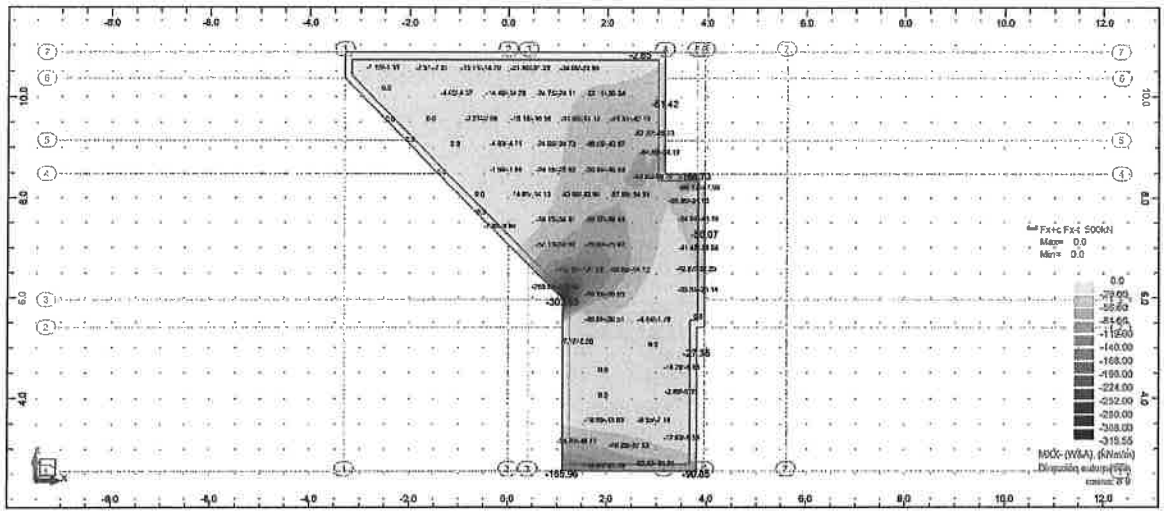
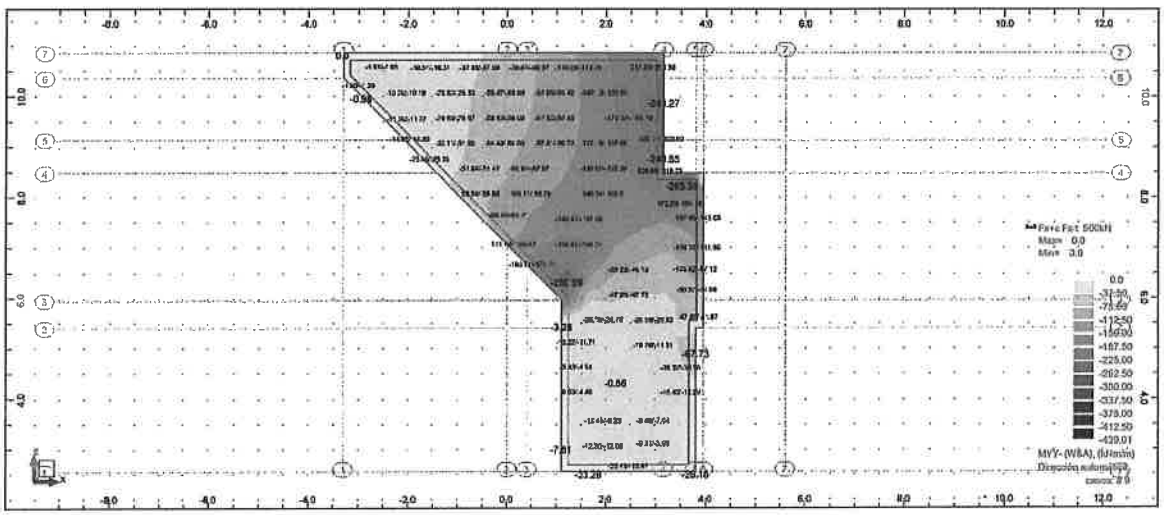
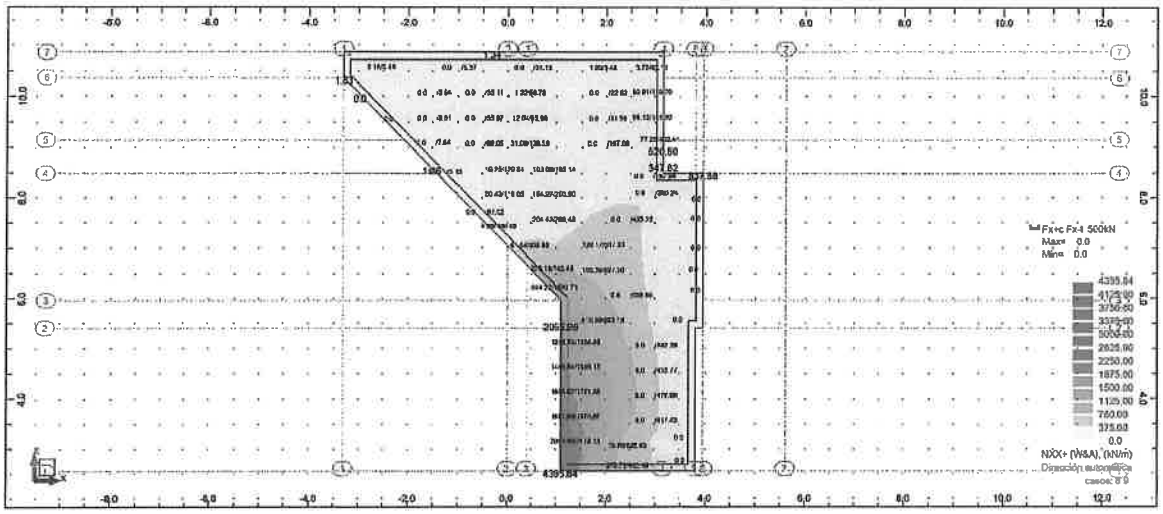


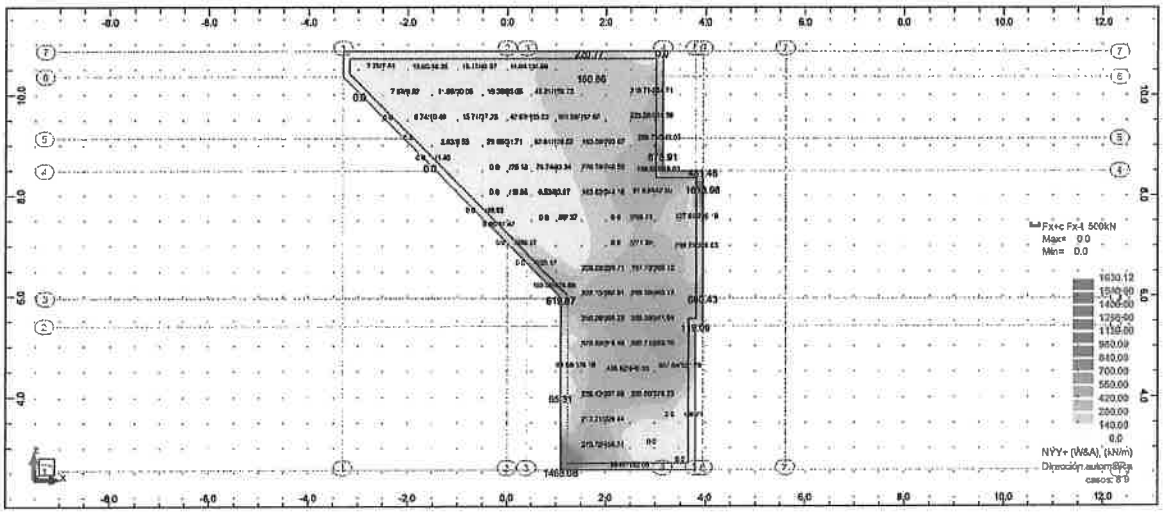
Momento flector Myy-



Tracción Nxx



Tracción Nyy



G - DISEÑO DE DINTELES

2.4 Capitel

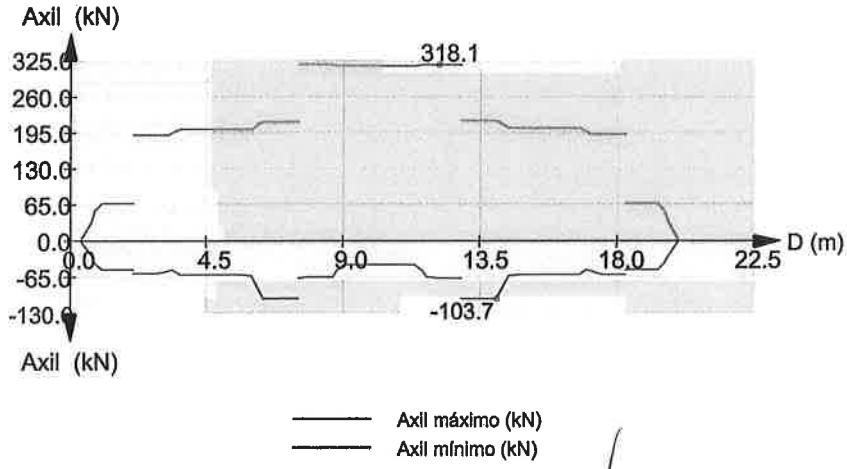
2.4.1 Esfuerzos de cálculo

Definición de los ejes locales

x ' : eje según la directriz del capitel
y ' : eje horizontal perpendicular a la directriz del capitel
z ' : eje vertical
D : Distancia al inicio del capitel (m)

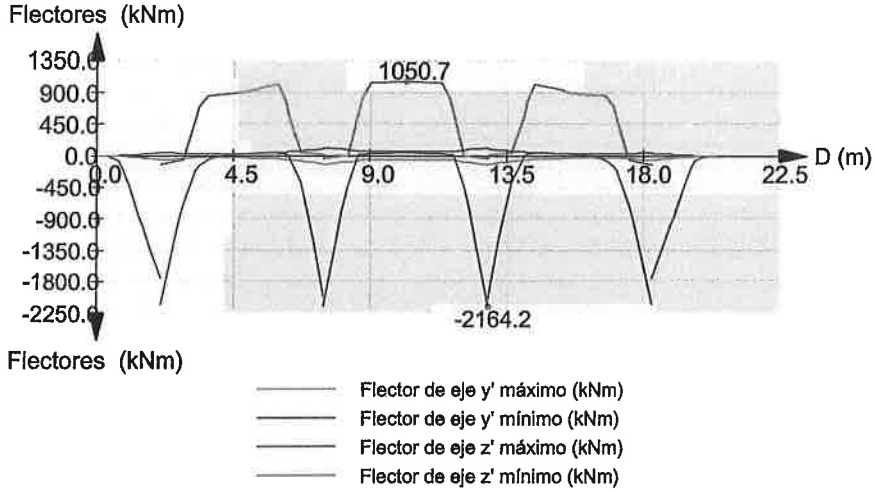
ESFUERZOS. EL Rotura por flexión

Estado límite de Resistencia. Envolvente global. Envolvente global



ESFUERZOS. EL Rotura por flexión

Estado límite de Resistencia. Envolvente global. Envolvente global

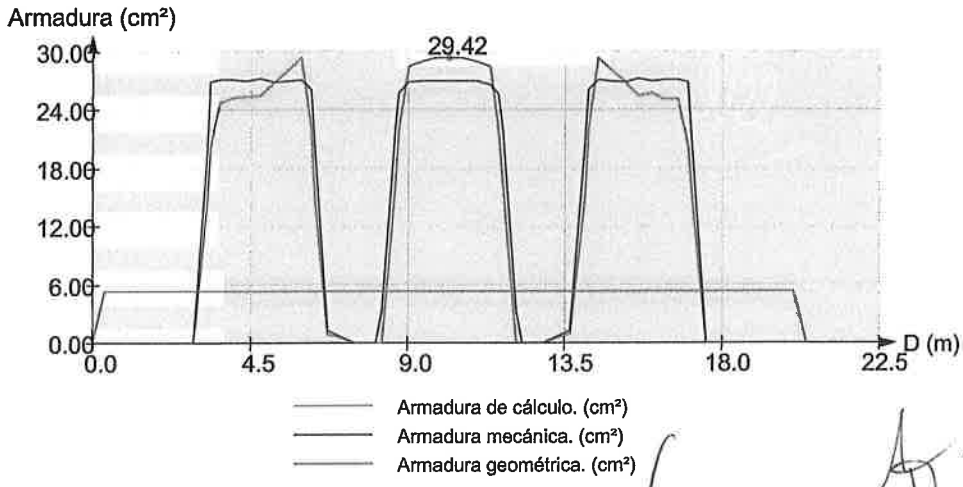


2.4.2 Armaduras de flexión

ARMADURA. EL Rotura por flexión

Estado límite de Resistencia. Envolvente global. Envolvente global

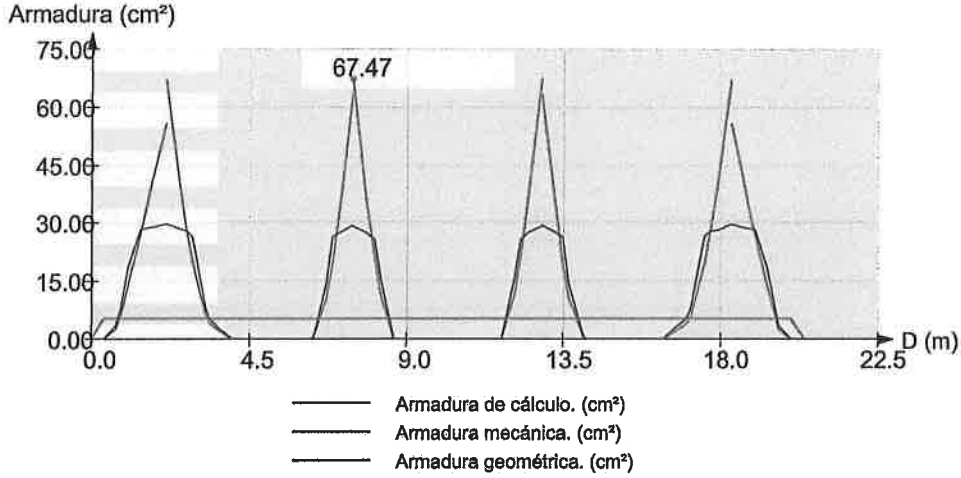
Capitel: armadura en la cara inferior



ARMADURA. EL Rotura por flexión

Estado límite de Resistencia. Envolvente global. Envolvente global

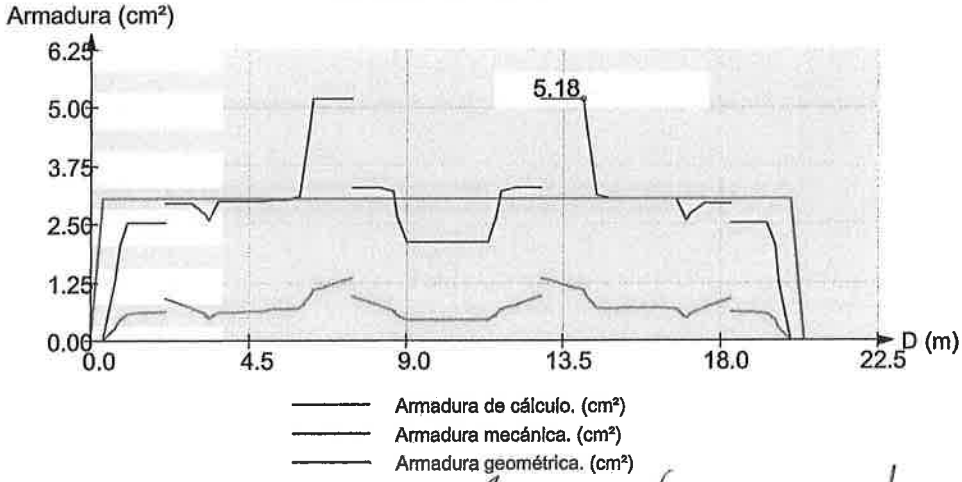
Capitel: armadura en la cara superior



ARMADURA. EL Rotura por flexión

Estado límite de Resistencia. Envolvente global. Envolvente global

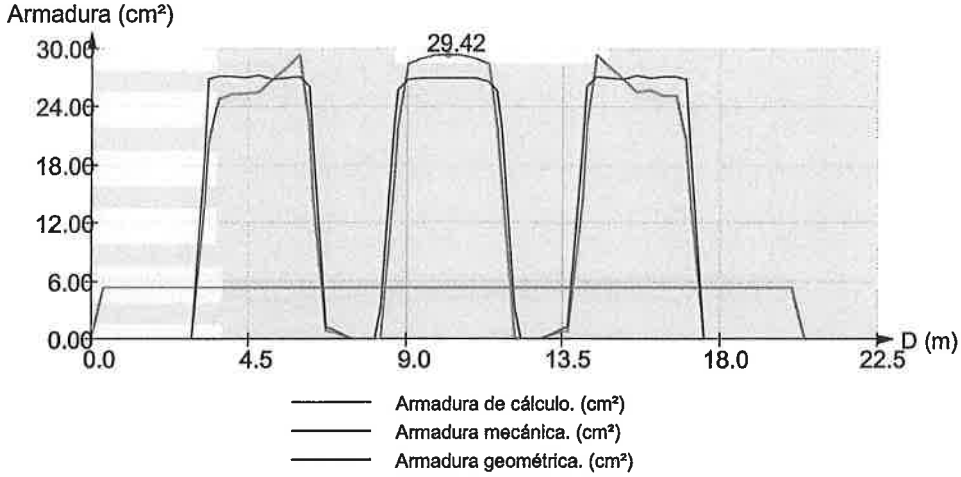
Capitel: armadura en las caras laterales



ARMADURA. EL Rotura por flexión

Envolvente global

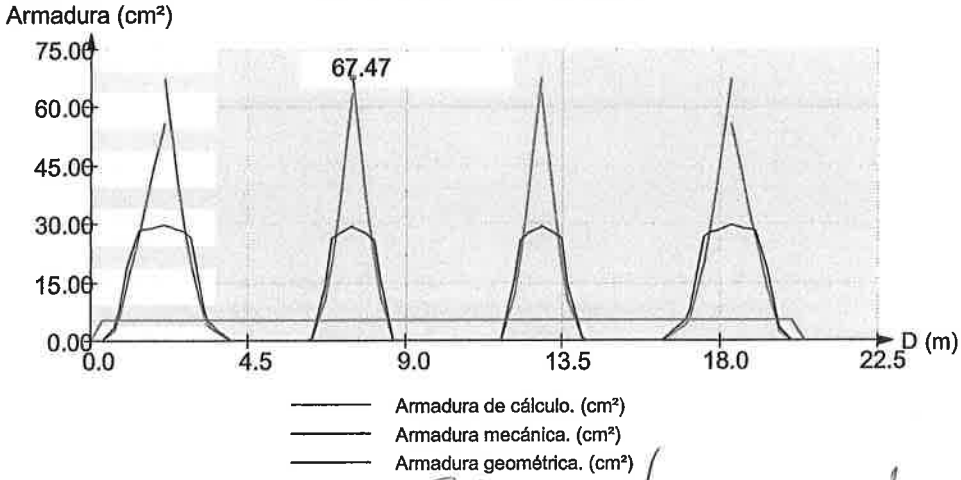
Capitel: armadura en la cara inferior



ARMADURA. EL Rotura por flexión

Envolvente global

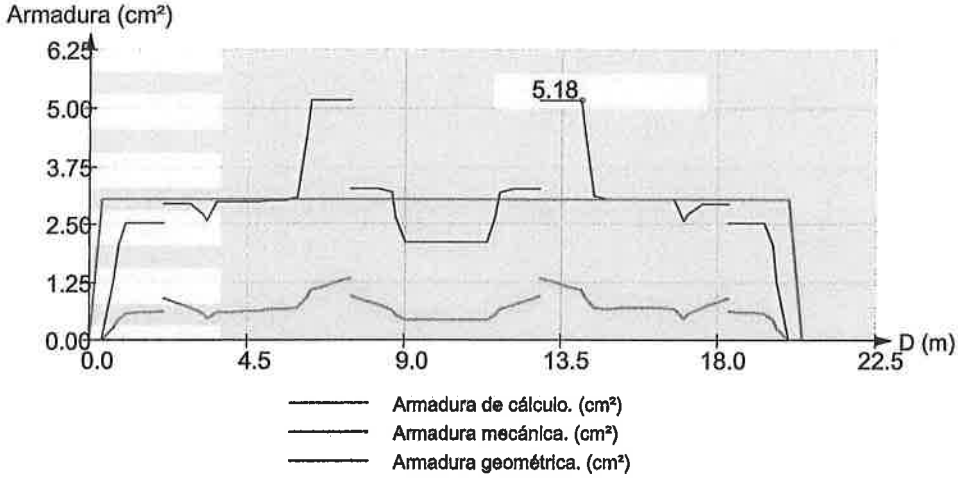
Capitel: armadura en la cara superior



ARMADURA. EL Rotura por flexión

Envolvente global

Capitel: armadura en las caras laterales



H - DISEÑO DE VIGAS LONGITUDINALES

1 FUERZA DE PRETENSADO

1.1 Fuerzas de pretesado

Coeficientes de seguridad empleados : unitarios.

1.1.1 Fuerza de pretesado a lo largo de cada cable en cada instante

P1 : Fuerza de pretesado después de tesar.
Prt1 : Pérdida de pretesado por retracción del hormigón entre P1 y P2.
Pfl1 : Pérdida de pretesado por fluencia del hormigón entre P1 y P2.
Prl1 : Pérdida de pretesado por relajación del acero de la armadura activa entre P1 y P2.
P2 : Fuerza de pretesado tras el fraguado de la losa.
Prt2 : Pérdida de pretesado por retracción del hormigón entre P2 y P3.
Pfl2 : Pérdida de pretesado por fluencia del hormigón entre P2 y P3.
Prl2 : Pérdida de pretesado por relajación del acero de la armadura activa entre P2 y P3.
P3 : Fuerza de pretesado a tiempo infinito.

Viga 2

Distancia al eje 1 (m)	Fila	Fuerza P1 (kN)	Pérdidas Prt1 (kN)	Pérdidas Pfl1 (kN)	Pérdidas Prl1 (kN)	Fuerza P2 (kN)	Pérdidas Prt2 (kN)	Pérdidas Pfl2 (kN)	Pérdidas Prl2 (kN)	Fuerza P3 (kN)
-0.400	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-0.400	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
-0.400	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.000	1	650.5	17.9	12.8	0.0	619.8	9.0	15.3	0.0	595.5
0.000	2	162.9	4.5	3.1	0.0	155.4	2.7	3.7	0.0	149.0
0.000	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.600	1	1467.7	17.7	27.0	45.4	1377.7	8.9	31.1	45.4	1292.3
0.600	2	367.8	4.4	6.5	11.5	345.4	2.6	7.6	11.5	323.7
0.600	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.457	1	1470.3	17.7	30.1	45.7	1376.7	9.3	33.2	45.7	1288.5
1.457	2	714.8	8.9	14.6	20.1	671.2	5.4	16.2	20.1	629.5
1.457	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.600	1	1440.3	17.4	31.8	41.6	1349.6	9.0	32.9	41.6	1266.1
2.600	2	1083.5	13.0	23.1	31.6	1015.7	7.9	24.1	31.6	952.1
2.600	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.915	1	1442.1	17.4	32.9	41.8	1350.0	9.2	33.8	41.8	1265.1
2.915	2	1209.7	17.4	31.9	31.8	1128.6	10.7	33.0	31.8	1053.0
2.915	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.600	1	1427.9	17.2	34.4	39.9	1336.4	9.1	34.5	39.9	1252.9
3.600	2	1432.7	17.2	33.4	40.5	1341.5	10.6	33.7	40.5	1256.7
3.600	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.372	1	1427.9	17.2	37.3	39.9	1333.5	9.1	36.8	39.9	1247.7
4.372	2	1432.7	17.2	36.2	40.5	1338.7	10.6	35.9	40.5	1251.6
4.372	3	304.4	4.3	8.8	3.7	287.6	3.0	8.8	3.7	272.0
5.512	1	1414.7	17.1	40.2	38.1	1319.3	9.1	38.7	38.1	1233.3
5.512	2	1419.9	17.1	39.1	38.8	1324.9	10.6	37.9	38.8	1237.7
5.512	3	712.6	8.5	19.0	19.8	665.3	6.0	18.5	19.8	621.0
5.830	1	1400.6	16.9	40.0	36.3	1307.4	9.0	38.1	36.3	1224.0
5.830	2	1406.3	16.9	38.9	37.0	1313.4	10.5	37.2	37.0	1228.7
5.830	3	795.0	12.7	28.3	18.9	735.1	9.0	27.3	18.9	680.0
6.600	1	1388.9	16.8	41.9	34.8	1295.4	9.0	39.7	34.8	1212.0
6.600	2	1395.0	16.8	40.7	35.5	1301.9	10.5	38.8	35.5	1217.0
6.600	3	1050.8	12.6	29.7	27.3	981.3	9.0	28.5	27.3	916.6
7.287	1	1388.9	16.8	44.6	34.8	1292.7	9.0	42.2	34.8	1206.7
7.287	2	1395.0	16.8	43.4	35.5	1299.3	10.5	41.3	35.5	1211.9
7.287	3	1314.9	16.8	42.1	27.3	1228.6	12.0	40.4	27.3	1148.9
7.600	1	1375.0	16.7	44.5	33.0	1280.9	8.9	41.7	33.0	1197.2
7.600	2	1381.6	16.7	43.2	33.8	1287.9	10.4	40.8	33.8	1202.8
7.600	3	1388.1	16.7	42.0	34.7	1294.8	11.8	39.9	34.7	1208.4
8.745	1	1376.3	16.7	47.8	33.1	1278.6	9.0	44.8	33.1	1191.7
8.745	2	1382.8	16.7	46.5	34.0	1285.6	10.5	43.9	34.0	1197.4

8.745	3	1736.6	20.8	56.5	43.5	1615.8	14.9	53.6	43.5	1503.8
10.202	1	1376.3	16.7	46.8	33.1	1279.7	9.0	42.5	33.1	1195.0
10.202	2	1382.8	16.7	45.5	34.0	1286.6	10.5	41.7	34.0	1200.5
10.202	3	1736.6	20.8	55.3	43.5	1617.0	14.9	51.0	43.5	1507.5
11.660	1	1376.3	16.7	45.7	33.1	1280.7	9.0	40.4	33.1	1198.2
11.660	2	1382.8	16.7	44.5	34.0	1287.6	10.5	39.6	34.0	1203.6
11.660	3	1736.6	20.8	54.2	43.5	1618.1	14.9	48.5	43.5	1511.1
13.117	1	1376.3	16.7	45.4	33.1	1281.1	9.0	39.6	33.1	1199.3
13.117	2	1382.8	16.7	44.2	34.0	1287.9	10.5	38.8	34.0	1204.6
13.117	3	1736.6	20.8	53.8	43.5	1618.5	14.9	47.6	43.5	1512.4
14.575	1	1376.3	16.7	45.0	33.1	1281.4	9.0	39.0	33.1	1200.3
14.575	2	1382.8	16.7	43.9	34.0	1288.3	10.5	38.2	34.0	1205.6
14.575	3	1736.6	20.8	53.4	43.5	1618.9	14.9	46.9	43.5	1513.6
16.032	1	1376.3	16.7	45.4	33.1	1281.1	9.0	39.6	33.1	1199.3
16.032	2	1382.8	16.7	44.2	34.0	1287.9	10.5	38.8	34.0	1204.6
16.032	3	1736.6	20.8	53.8	43.5	1618.5	14.9	47.6	43.5	1512.4
17.490	1	1376.3	16.7	45.7	33.1	1280.7	9.0	40.4	33.1	1198.2
17.490	2	1382.8	16.7	44.5	34.0	1287.6	10.5	39.6	34.0	1203.6
17.490	3	1736.6	20.8	54.2	43.5	1618.1	14.9	48.5	43.5	1511.1
18.947	1	1376.3	16.7	46.8	33.1	1279.7	9.0	42.5	33.1	1195.0
18.947	2	1382.8	16.7	45.5	34.0	1286.6	10.5	41.7	34.0	1200.5
18.947	3	1736.6	20.8	55.3	43.5	1617.0	14.9	51.0	43.5	1507.5
20.405	1	1376.3	16.7	47.8	33.1	1278.6	9.0	44.8	33.1	1191.7
20.405	2	1382.8	16.7	46.5	34.0	1285.6	10.5	43.9	34.0	1197.4
20.405	3	1736.6	20.8	56.5	43.5	1615.8	14.9	53.6	43.5	1503.8
21.550	1	1375.0	16.7	44.5	33.0	1280.9	8.9	41.7	33.0	1197.2
21.550	2	1381.6	16.7	43.2	33.8	1287.9	10.4	40.8	33.8	1202.8
21.550	3	1388.1	16.7	42.0	34.7	1294.8	11.8	39.9	34.7	1208.4
21.862	1	1388.9	16.8	44.6	34.8	1292.7	9.0	42.2	34.8	1206.7
21.862	2	1395.0	16.8	43.4	35.5	1299.3	10.5	41.3	35.5	1211.9
21.862	3	1314.9	16.8	42.1	27.3	1228.6	12.0	40.4	27.3	1148.9
22.550	1	1388.9	16.8	41.9	34.8	1295.4	9.0	39.7	34.8	1212.0
22.550	2	1395.0	16.8	40.7	35.5	1301.9	10.5	38.8	35.5	1217.0
22.550	3	1050.8	12.6	29.7	27.3	981.3	9.0	28.5	27.3	916.6
23.320	1	1400.6	16.9	40.0	36.3	1307.4	9.0	38.1	36.3	1224.0
23.320	2	1406.3	16.9	38.9	37.0	1313.4	10.5	37.2	37.0	1228.7
23.320	3	795.0	12.7	28.3	18.9	735.1	9.0	27.3	18.9	680.0
23.638	1	1414.7	17.1	40.2	38.1	1319.3	9.1	38.7	38.1	1233.3
23.638	2	1419.9	17.1	39.1	38.8	1324.9	10.6	37.9	38.8	1237.7
23.638	3	712.6	8.5	19.0	19.8	665.3	6.0	18.5	19.8	621.0
24.778	1	1427.9	17.2	37.3	39.9	1333.5	9.1	36.8	39.9	1247.7
24.778	2	1432.7	17.2	36.2	40.5	1338.7	10.6	35.9	40.5	1251.6
24.778	3	304.4	4.3	8.8	3.7	287.6	3.0	8.8	3.7	272.0
25.550	1	1427.9	17.2	34.4	39.9	1336.4	9.1	34.5	39.9	1252.9
25.550	2	1432.7	17.2	33.4	40.5	1341.5	10.6	33.7	40.5	1256.7
25.550	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26.235	1	1442.1	17.4	32.9	41.8	1350.0	9.2	33.8	41.8	1265.1
26.235	2	1209.7	17.4	31.9	31.8	1128.6	10.7	33.0	31.8	1053.0
26.235	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26.550	1	1440.3	17.4	31.8	41.6	1349.6	9.0	32.9	41.6	1266.1
26.550	2	1083.5	13.0	23.1	31.6	1015.7	7.9	24.1	31.6	952.1
26.550	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.692	1	1470.3	17.7	30.1	45.7	1376.7	9.3	33.2	45.7	1288.5
27.692	2	714.8	8.9	14.6	20.1	671.2	5.4	16.2	20.1	629.5
27.692	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28.550	1	1467.7	17.7	27.0	45.4	1377.7	8.9	31.1	45.4	1292.3
28.550	2	367.8	4.4	6.5	11.5	345.4	2.6	7.6	11.5	323.7
28.550	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29.150	1	650.5	17.9	12.8	0.0	619.8	9.0	15.3	0.0	595.5
29.150	2	162.9	4.5	3.1	0.0	155.4	2.7	3.7	0.0	149.0
29.150	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29.550	1	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0
29.550	2	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0
29.550	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1.1.2 Pérdidas de pretesado totales

P0 : Fuerza de tesado.
DP1a : Pérdidas de pretesado previas a la transferencia de la fuerza de tesado al hormigón.
DP1b : Pérdidas de pretesado por acortamiento elástico.
DP1 : Pérdidas totales instantáneas de pretesado.
P1 : Fuerza de pretesado tras las pérdidas instantáneas.
DP2 : Pérdidas totales diferidas de pretesado.
DP3 : Pérdidas totales de pretesado.
P2 : Fuerza de pretesado a tiempo infinito.

Viga 2

Distancia al eje 1 (m)	P0 (kN)	DP1a (kN)	DP1b (kN)	DP1 (kN)	P1 (kN)	DP2 (kN)	DP3 (kN)	P2 (kN)
-0.400	5187.0	109.2	5077.8	5187.0	0.0	0.0	5187.0	0.0
0.000	5187.0	109.2	4264.4	4373.6	813.4	69.0	4442.5	744.5
0.600	5187.0	109.2	3242.3	3351.5	1835.5	219.5	3571.0	1616.0
1.457	5187.0	109.2	2892.7	3001.9	2185.1	267.1	3269.0	1918.0
2.600	5187.0	109.2	2554.0	2663.2	2523.8	305.7	2968.9	2218.1
2.915	5187.0	109.2	2426.0	2535.2	2651.8	333.7	2868.9	2318.1
3.600	5187.0	109.2	2217.2	2326.4	2860.6	351.0	2677.5	2509.5
4.372	5187.0	109.2	1912.9	2022.1	3164.9	393.6	2415.6	2771.4
5.512	5187.0	109.2	1530.6	1639.8	3547.2	455.2	2095.0	3092.0
5.830	5187.0	109.2	1475.9	1585.1	3601.9	469.2	2054.3	3132.7
6.600	5187.0	109.2	1243.1	1352.3	3834.7	489.1	1841.4	3345.6
7.287	5187.0	109.2	979.0	1088.2	4098.8	531.3	1619.5	3567.5
7.600	5187.0	109.2	933.1	1042.3	4144.7	536.2	1578.6	3608.4
8.745	5187.0	109.2	582.1	691.3	4495.7	602.9	1294.2	3892.8
10.202	5187.0	109.2	582.1	691.3	4495.7	592.6	1283.9	3903.1
11.660	5187.0	109.2	582.1	691.3	4495.7	582.8	1274.1	3912.9
13.117	5187.0	109.2	582.1	691.3	4495.7	579.3	1270.6	3916.4
14.575	5187.0	109.2	582.1	691.3	4495.7	576.3	1267.6	3919.4
16.032	5187.0	109.2	582.1	691.3	4495.7	579.3	1270.6	3916.4
17.490	5187.0	109.2	582.1	691.3	4495.7	582.8	1274.1	3912.9
18.947	5187.0	109.2	582.1	691.3	4495.7	592.6	1283.9	3903.1
20.405	5187.0	109.2	582.1	691.3	4495.7	602.9	1294.2	3892.8
21.550	5187.0	109.2	933.1	1042.3	4144.7	536.2	1578.6	3608.4
21.862	5187.0	109.2	979.0	1088.2	4098.8	531.3	1619.5	3567.5
22.550	5187.0	109.2	1243.1	1352.3	3834.7	489.1	1841.4	3345.6
23.320	5187.0	109.2	1475.9	1585.1	3601.9	469.2	2054.3	3132.7
23.638	5187.0	109.2	1530.6	1639.8	3547.2	455.2	2095.0	3092.0
24.778	5187.0	109.2	1912.9	2022.1	3164.9	393.6	2415.6	2771.4
25.550	5187.0	109.2	2217.2	2326.4	2860.6	351.0	2677.5	2509.5
26.235	5187.0	109.2	2426.0	2535.2	2651.8	333.7	2868.9	2318.1
26.550	5187.0	109.2	2554.0	2663.2	2523.8	305.7	2968.9	2218.1
27.692	5187.0	109.2	2892.7	3001.9	2185.1	267.1	3269.0	1918.0
28.550	5187.0	109.2	3242.3	3351.5	1835.5	219.5	3571.0	1616.0
29.150	5187.0	109.2	4264.4	4373.6	813.4	69.0	4442.5	744.5
29.550	5187.0	109.2	5077.8	5187.0	0.0	0.0	5187.0	-0.0

1.1.3 Pérdidas de pretesado totales (%)

DP1 : Pérdidas totales instantáneas de pretesado.
DP2 : Pérdidas totales diferidas de pretesado.
DP3 : Pérdidas totales de pretesado.

Viga 2

Distancia al eje 1	DP1	DP2	DP3
(m)	(%)	(%)	(%)
-0.400	100.0	0.0	100.0
0.000	84.3	1.3	85.6
0.600	64.6	4.2	68.8
1.457	57.9	5.1	63.0
2.600	51.3	5.9	57.2
2.915	48.9	6.4	55.3
3.600	44.9	6.8	51.6

4.372	39.0	7.6	46.6
5.512	31.6	8.8	40.4
5.830	30.6	9.0	39.6
6.600	26.1	9.4	35.5
7.287	21.0	10.2	31.2
7.600	20.1	10.3	30.4
8.745	13.3	11.6	25.0
10.202	13.3	11.4	24.8
11.660	13.3	11.2	24.6
13.117	13.3	11.2	24.5
14.575	13.3	11.1	24.4
16.032	13.3	11.2	24.5
17.490	13.3	11.2	24.6
18.947	13.3	11.4	24.8
20.405	13.3	11.6	25.0
21.550	20.1	10.3	30.4
21.862	21.0	10.2	31.2
22.550	26.1	9.4	35.5
23.320	30.6	9.0	39.6
23.638	31.6	8.8	40.4
24.778	39.0	7.6	46.6
25.550	44.9	6.8	51.6
26.235	48.9	6.4	55.3
26.550	51.3	5.9	57.2
27.692	57.9	5.1	63.0
28.550	64.6	4.2	68.8
29.150	84.3	1.3	85.6
29.550	100.0	0.0	100.0

2 VERIFICACIÓN DEL EL ENCAJE TENSIONAL EN LAS VIGAS

2.1 Tensiones admisibles

Tras la transferencia del pretesado

		Combinación	Servicio I		Servicio III	
			Considerar	σ_{adm} (MPa)	Considerar	σ_{adm} (MPa)
Viga	Compresiones	Tensiones	Sí	23.95	Sí	23.95
	Tracciones	Tensiones	Sí	-3.98	Sí	-3.98

Tras el hormigonado de la losa

		Combinación	Servicio I		Servicio III	
			Considerar	σ_{adm} (MPa)	Considerar	σ_{adm} (MPa)
Viga	Compresiones	Tensiones	Sí	30.00	Sí	30.00
	Tracciones	Tensiones	Sí	-4.45	Sí	-4.45

Tras la disposición de la superestructura

		Combinación	Servicio I		Servicio III	
			Considerar	σ_{adm} (MPa)	Considerar	σ_{adm} (MPa)
Losa	Compresiones	Tensiones	Sí	11.25	Sí	11.25
	Tracciones	Tensiones	No		No	
Viga	Compresiones	Tensiones	Sí	22.50	No	
	Tracciones	Tensiones	No		Sí	-3.54

Tras la apertura al tráfico

		Combinación	Servicio I		Servicio III	
			Considerar	σ_{adm} (MPa)	Considerar	σ_{adm} (MPa)
Losa	Compresiones	Tensiones	Sí	15.00	Sí	15.00
	Tracciones	Tensiones	No		No	
Viga	Compresiones	Tensiones	Sí	30.00	No	
	Tracciones	Tensiones	No		Sí	-3.54

A tiempo infinito

		Combinación	Servicio I		Servicio III	
			Considerar	σ_{adm} (MPa)	Considerar	σ_{adm} (MPa)
Losa	Compresiones	Tensiones	Sí	15.00	Sí	15.00
	Tracciones	Tensiones	No		No	
Viga	Compresiones	Tensiones	Sí	30.00	No	
	Tracciones	Tensiones	No		Sí	-3.54

Verificación de las tracciones en el hormigón a la altura de los cables:

Se consideran todos los cables.

2.2 Estado límite de Servicio. Combinación de Servicio I

Cables pretesado : se muestran las tensiones en el hormigón a la altura del cable más traccionado.

Viga 2:

Viga 2. Tras la transferencia del pretesado										
	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00				
	0.000	4.74	5.40	5.40	-1.52	-1.52				
	0.600	10.29	11.68	11.68	-2.96	-2.96				
	1.457	11.38	12.87	12.87	-2.78	-2.78				
	2.600	12.50	14.07	14.07	-2.44	-2.44				
	2.915	12.81	14.41	14.41	-2.35	-2.35				
	3.600	13.60	15.27	15.27	-2.27	-2.27				
	4.372	14.81	16.61	16.61	-2.22	-2.22				
	5.512	16.13	18.04	18.04	-2.02	-2.02				
	5.830	16.25	18.16	18.16	-1.89	-1.89				
	6.600	16.94	18.92	18.92	-1.81	-1.81				
	7.287	18.06	20.16	20.16	-1.87	-1.87				
	7.600	18.18	20.28	20.28	-1.79	-1.79				
	8.745	19.45	21.68	21.68	-1.73	-1.73				
	10.202	19.15	21.31	21.31	-1.36	-1.36				
	11.660	18.85	20.94	20.94	-0.99	-0.99				
	13.117	18.74	20.81	20.81	-0.86	-0.86				
	14.575	18.64	20.69	20.69	-0.74	-0.74				
	16.032	18.74	20.81	20.81	-0.86	-0.86				
	17.490	18.85	20.94	20.94	-0.99	-0.99				
	18.947	19.15	21.31	21.31	-1.36	-1.36				
	20.405	19.45	21.68	21.68	-1.73	-1.73				

	21.550	18.18	20.28	20.28	-1.79	-1.79
	21.862	18.06	20.16	20.16	-1.87	-1.87
	22.550	16.94	18.92	18.92	-1.81	-1.81
	23.320	16.25	18.16	18.16	-1.89	-1.89
	23.638	16.13	18.04	18.04	-2.02	-2.02
	24.778	14.81	16.61	16.61	-2.22	-2.22
	25.550	13.60	15.27	15.27	-2.27	-2.27
	26.235	12.81	14.41	14.41	-2.35	-2.35
	26.550	12.50	14.07	14.07	-2.44	-2.44
	27.692	11.38	12.87	12.87	-2.78	-2.78
	28.550	10.29	11.68	11.68	-2.96	-2.96
	29.150	4.74	5.40	5.40	-1.52	-1.52
	29.550	0.00	0.00	0.00	-0.00	-0.00
Tensión pésima		-0.00	-0.00	21.68	-2.96	0.00
Tensión admisible			-3.98	23.95	-3.98	23.95

Se cumple la verificación

Viga 2. Tras el hormigonado de la losa

	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00				
	0.000	4.52	5.15	5.15	-1.46	-1.46				
	0.600	9.12	10.32	10.32	-2.16	-2.16				
	1.457	9.40	10.51	10.51	-1.10	-1.10				
	2.600	9.46	10.42	10.42	0.41	0.41				
	2.915	9.48	10.39	10.39	0.82	0.82				
	3.600	9.79	10.67	10.67	1.44	1.44				
	4.372	10.39	11.26	11.26	2.11	2.11				
	5.512	10.85	11.65	11.65	3.22	3.22				
	5.830	10.72	11.48	11.48	3.60	3.60				
	6.600	11.10	11.84	11.84	4.10	4.10				
	7.287	11.79	12.57	12.57	4.45	4.45				
	7.600	11.76	12.51	12.51	4.70	4.70				
	8.745	12.39	13.12	13.12	5.42	5.42				
	10.202	11.72	12.29	12.29	6.26	6.26				
	11.660	11.05	11.47	11.47	7.11	7.11				
	13.117	10.83	11.19	11.19	7.39	7.39				
	14.575	10.60	10.91	10.91	7.67	7.67				
	16.032	10.83	11.19	11.19	7.39	7.39				
	17.490	11.05	11.47	11.47	7.11	7.11				
	18.947	11.72	12.29	12.29	6.26	6.26				
	20.405	12.39	13.12	13.12	5.42	5.42				
	21.550	11.76	12.51	12.51	4.70	4.70				
	21.862	11.79	12.57	12.57	4.45	4.45				
	22.550	11.10	11.84	11.84	4.10	4.10				
	23.320	10.72	11.48	11.48	3.60	3.60				
	23.638	10.85	11.65	11.65	3.22	3.22				
	24.778	10.39	11.26	11.26	2.11	2.11				
	25.550	9.79	10.67	10.67	1.44	1.44				
	26.235	9.48	10.39	10.39	0.82	0.82				
	26.550	9.46	10.42	10.42	0.41	0.41				
	27.692	9.40	10.51	10.51	-1.10	-1.10				
	28.550	9.12	10.32	10.32	-2.16	-2.16				
	29.150	4.52	5.15	5.15	-1.46	-1.46				
	29.550	0.00	0.00	0.00	-0.00	-0.00				
Tensión pésima		-0.00	-0.00	13.12	-2.16	7.67				
Tensión admisible			-4.45	30.00	-4.45	30.00				

Se cumple la verificación

Viga 2. Tras la disposición de la superestructura

	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.000	4.52	5.15	5.15	-1.46	-1.46	0.00	0.00	0.00	0.00
	0.600	8.93	10.09	10.09	-2.09	-2.09	0.05	0.05	0.07	0.07
	1.457	8.94	9.98	9.98	-0.94	-0.94	0.11	0.11	0.17	0.17
	2.600	8.67	9.51	9.51	0.69	0.69	0.19	0.19	0.30	0.30
	2.915	8.61	9.39	9.39	1.13	1.13	0.22	0.22	0.34	0.34
	3.600	8.72	9.45	9.45	1.82	1.82	0.26	0.26	0.41	0.41
	4.372	9.13	9.82	9.82	2.56	2.56	0.31	0.31	0.48	0.48
	5.512	9.33	9.92	9.92	3.77	3.77	0.38	0.38	0.58	0.58
	5.830	9.13	9.66	9.66	4.17	4.17	0.39	0.39	0.61	0.61
	6.600	9.38	9.87	9.87	4.72	4.72	0.43	0.43	0.67	0.67
	7.287	9.95	10.46	10.46	5.12	5.12	0.46	0.46	0.72	0.72
	7.600	9.86	10.33	10.33	5.39	5.39	0.48	0.48	0.74	0.74
	8.745	10.33	10.76	10.76	6.17	6.17	0.52	0.52	0.80	0.80
	10.202	9.47	9.73	9.73	7.08	7.08	0.57	0.57	0.88	0.88
	11.660	8.67	8.74	8.74	7.98	7.98	0.60	0.60	0.93	0.93
	13.117	8.37	8.38	8.38	8.29	8.29	0.62	0.62	0.96	0.96
	14.575	8.10	8.08	8.08	8.58	8.58	0.63	0.63	0.97	0.97
	16.032	8.37	8.38	8.38	8.29	8.29	0.62	0.62	0.96	0.96
	17.490	8.67	8.74	8.74	7.98	7.98	0.60	0.60	0.93	0.93
	18.947	9.47	9.73	9.73	7.08	7.08	0.57	0.57	0.88	0.88
	20.405	10.33	10.76	10.76	6.17	6.17	0.52	0.52	0.80	0.80
	21.550	9.86	10.33	10.33	5.39	5.39	0.48	0.48	0.74	0.74
	21.862	9.95	10.46	10.46	5.12	5.12	0.46	0.46	0.72	0.72
	22.550	9.38	9.87	9.87	4.72	4.72	0.43	0.43	0.67	0.67
	23.320	9.13	9.66	9.66	4.17	4.17	0.39	0.39	0.61	0.61
	23.638	9.33	9.92	9.92	3.77	3.77	0.38	0.38	0.58	0.58
	24.778	9.13	9.82	9.82	2.56	2.56	0.31	0.31	0.48	0.48
	25.550	8.72	9.45	9.45	1.82	1.82	0.26	0.26	0.41	0.41
	26.235	8.61	9.39	9.39	1.13	1.13	0.22	0.22	0.34	0.34
	26.550	8.67	9.51	9.51	0.69	0.69	0.19	0.19	0.30	0.30
	27.692	8.94	9.98	9.98	-0.94	-0.94	0.11	0.11	0.17	0.17
	28.550	8.93	10.09	10.09	-2.09	-2.09	0.05	0.05	0.07	0.07
	29.150	4.52	5.15	5.15	-1.46	-1.46	0.00	0.00	0.00	0.00
	29.550	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
Tensión pésima		-0.00	-0.00	10.76	-2.09	8.58	0.00	0.63	0.00	0.97
Tensión admisible				22.50		22.50		11.25		11.25

Se cumple la verificación

Viga 2. Tras la apertura al tráfico

	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.000	4.51	5.14	5.17	-1.46	-1.46	-0.00	0.00	-0.01	0.00
	0.600	8.00	9.03	10.13	-2.11	-1.77	0.04	0.27	0.06	0.42
	1.457	6.75	7.48	10.04	-0.95	-0.16	0.10	0.65	0.16	1.01
	2.600	4.96	5.27	9.60	0.66	2.00	0.17	1.10	0.27	1.71
	2.915	4.57	4.78	9.50	1.10	2.57	0.19	1.21	0.30	1.88
	3.600	3.88	3.92	9.58	1.78	3.55	0.24	1.46	0.37	2.26
	4.372	3.46	3.41	9.97	2.52	4.56	0.28	1.69	0.43	2.63
	5.512	2.57	2.41	10.10	3.71	6.12	0.34	2.01	0.52	3.11
	5.830	2.03	1.83	9.84	4.12	6.63	0.35	2.09	0.55	3.25
	6.600	1.80	1.55	10.08	4.66	7.37	0.39	2.26	0.60	3.49
	7.287	1.88	1.61	10.68	5.05	7.92	0.41	2.40	0.64	3.72
	7.600	1.54	1.24	10.56	5.32	8.28	0.43	2.47	0.66	3.82
	8.745	1.39	1.04	11.01	6.09	9.27	0.47	2.67	0.72	4.12
	10.202	-0.30	-0.78	10.00	6.99	10.43	0.51	2.88	0.78	4.45

	11.660	-1.79	-2.39	9.03	7.88	11.53	0.54	3.06	0.83	4.72
	13.117	-2.32	-2.96	8.69	8.19	11.90	0.55	3.12	0.85	4.82
	14.575	-2.67	-3.33	8.39	8.48	12.22	0.56	3.14	0.86	4.85
	16.032	-2.32	-2.96	8.69	8.19	11.90	0.55	3.12	0.85	4.82
	17.490	-1.79	-2.39	9.03	7.88	11.53	0.54	3.06	0.83	4.72
	18.947	-0.30	-0.78	10.00	6.99	10.43	0.51	2.88	0.78	4.45
	20.405	1.39	1.04	11.01	6.09	9.27	0.47	2.67	0.72	4.12
	21.550	1.54	1.24	10.56	5.32	8.28	0.43	2.47	0.66	3.82
	21.862	1.88	1.61	10.68	5.05	7.92	0.41	2.40	0.64	3.72
	22.550	1.80	1.55	10.08	4.66	7.37	0.39	2.26	0.60	3.49
	23.320	2.03	1.83	9.84	4.12	6.63	0.35	2.09	0.55	3.25
	23.638	2.57	2.41	10.10	3.71	6.12	0.34	2.01	0.52	3.11
	24.778	3.46	3.41	9.97	2.52	4.56	0.28	1.69	0.43	2.63
	25.550	3.88	3.92	9.58	1.78	3.55	0.24	1.46	0.37	2.26
	26.235	4.57	4.78	9.50	1.10	2.57	0.19	1.21	0.30	1.88
	26.550	4.96	5.27	9.60	0.66	2.00	0.17	1.10	0.27	1.71
	27.692	6.75	7.48	10.04	-0.95	-0.16	0.10	0.65	0.16	1.01
	28.550	8.00	9.03	10.13	-2.11	-1.77	0.04	0.27	0.06	0.42
	29.150	4.51	5.14	5.17	-1.46	-1.46	-0.00	0.00	-0.01	0.00
	29.550	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
Tensión pésima		-2.67	-3.33	11.01	-2.11	12.22	-0.00	3.14	-0.01	4.85
Tensión admisible				30.00		30.00		15.00		15.00

Se cumple la verificación

Viga 2. A tiempo infinito										
	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	0.00	0.01	0.01	-0.01	-0.01	0.00	0.00	0.00	0.00
	0.000	3.05	3.04	3.07	3.34	3.34	-1.42	-1.41	-1.00	-0.99
	0.600	6.06	6.35	7.45	3.02	3.35	-1.36	-1.13	-1.04	-0.68
	1.457	4.79	4.80	7.36	3.98	4.77	-1.23	-0.69	-0.90	-0.05
	2.600	2.78	2.61	6.94	5.29	6.63	-1.07	-0.15	-0.70	0.74
	2.915	2.32	2.11	6.82	5.66	7.13	-1.03	-0.01	-0.65	0.93
	3.600	1.53	1.24	6.90	6.23	7.99	-0.95	0.27	-0.56	1.33
	4.372	1.02	0.67	7.23	6.85	8.90	-0.86	0.56	-0.47	1.73
	5.512	0.05	-0.40	7.28	7.85	10.26	-0.73	0.94	-0.33	2.26
	5.830	-0.48	-0.98	7.03	8.17	10.69	-0.69	1.05	-0.28	2.42
	6.600	-0.71	-1.25	7.28	8.63	11.33	-0.63	1.24	-0.22	2.68
	7.287	-0.72	-1.28	7.79	8.97	11.85	-0.57	1.42	-0.17	2.91
	7.600	-1.05	-1.64	7.67	9.19	12.15	-0.54	1.50	-0.13	3.03
	8.745	-1.32	-1.96	8.02	9.85	13.03	-0.45	1.75	-0.04	3.36
	10.202	-2.91	-3.66	7.12	10.56	14.00	-0.38	2.00	0.07	3.74
	11.660	-4.30	-5.16	6.26	11.25	14.90	-0.31	2.21	0.17	4.06
	13.117	-4.80	-5.69	5.95	11.50	15.21	-0.28	2.29	0.21	4.18
	14.575	-5.11	-6.03	5.69	11.72	15.46	-0.26	2.33	0.24	4.23
	16.032	-4.80	-5.69	5.95	11.50	15.21	-0.28	2.29	0.21	4.18
	17.490	-4.30	-5.16	6.26	11.25	14.90	-0.31	2.21	0.17	4.06
	18.947	-2.91	-3.66	7.12	10.56	14.00	-0.38	2.00	0.07	3.74
	20.405	-1.32	-1.96	8.02	9.85	13.03	-0.45	1.75	-0.04	3.36
	21.550	-1.05	-1.64	7.67	9.19	12.15	-0.54	1.50	-0.13	3.03
	21.862	-0.72	-1.28	7.79	8.97	11.85	-0.57	1.42	-0.17	2.91
	22.550	-0.71	-1.25	7.28	8.63	11.33	-0.63	1.24	-0.22	2.68
	23.320	-0.48	-0.98	7.03	8.17	10.69	-0.69	1.05	-0.28	2.42
	23.638	0.05	-0.40	7.28	7.85	10.26	-0.73	0.94	-0.33	2.26
	24.778	1.02	0.67	7.23	6.85	8.90	-0.86	0.56	-0.47	1.73
	25.550	1.53	1.24	6.90	6.23	7.99	-0.95	0.27	-0.56	1.33
	26.235	2.32	2.11	6.82	5.66	7.13	-1.03	-0.01	-0.65	0.93
	26.550	2.78	2.61	6.94	5.29	6.63	-1.07	-0.15	-0.70	0.74
	27.692	4.79	4.80	7.36	3.98	4.77	-1.23	-0.69	-0.90	-0.05
	28.550	6.06	6.35	7.45	3.02	3.35	-1.36	-1.13	-1.04	-0.68
	29.150	3.05	3.04	3.07	3.34	3.34	-1.42	-1.41	-1.00	-0.99
	29.550	0.00	0.01	0.01	-0.01	-0.01	0.00	0.00	0.00	0.00

Tensión pésima		-5.11	-6.03	8.02	-0.01	15.46	-1.42	2.33	-1.04	4.23
Tensión admisible				30.00		30.00		15.00		15.00

Se cumple la verificación

2.3 Estado límite de Servicio. Combinación de Servicio III

Cables pretesado : se muestran las tensiones en el hormigón a la altura del cable más traccionado.

Viga 2:

Viga 2. Tras la transferencia del pretesado										
	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
	(m)	σ_{min} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00				
	0.000	4.74	5.40	5.40	-1.52	-1.52				
	0.600	10.29	11.68	11.68	-2.96	-2.96				
	1.457	11.38	12.87	12.87	-2.78	-2.78				
	2.600	12.50	14.07	14.07	-2.44	-2.44				
	2.915	12.81	14.41	14.41	-2.35	-2.35				
	3.600	13.60	15.27	15.27	-2.27	-2.27				
	4.372	14.81	16.61	16.61	-2.22	-2.22				
	5.512	16.13	18.04	18.04	-2.02	-2.02				
	5.830	16.25	18.16	18.16	-1.89	-1.89				
	6.600	16.94	18.92	18.92	-1.81	-1.81				
	7.287	18.06	20.16	20.16	-1.87	-1.87				
	7.600	18.18	20.28	20.28	-1.79	-1.79				
	8.745	19.45	21.68	21.68	-1.73	-1.73				
	10.202	19.15	21.31	21.31	-1.36	-1.36				
	11.660	18.85	20.94	20.94	-0.99	-0.99				
	13.117	18.74	20.81	20.81	-0.86	-0.86				
	14.575	18.64	20.69	20.69	-0.74	-0.74				
	16.032	18.74	20.81	20.81	-0.86	-0.86				
	17.490	18.85	20.94	20.94	-0.99	-0.99				
	18.947	19.15	21.31	21.31	-1.36	-1.36				
	20.405	19.45	21.68	21.68	-1.73	-1.73				
	21.550	18.18	20.28	20.28	-1.79	-1.79				
	21.862	18.06	20.16	20.16	-1.87	-1.87				
	22.550	16.94	18.92	18.92	-1.81	-1.81				
	23.320	16.25	18.16	18.16	-1.89	-1.89				
	23.638	16.13	18.04	18.04	-2.02	-2.02				
	24.778	14.81	16.61	16.61	-2.22	-2.22				
	25.550	13.60	15.27	15.27	-2.27	-2.27				
	26.235	12.81	14.41	14.41	-2.35	-2.35				
	26.550	12.50	14.07	14.07	-2.44	-2.44				
	27.692	11.38	12.87	12.87	-2.78	-2.78				
	28.550	10.29	11.68	11.68	-2.96	-2.96				
	29.150	4.74	5.40	5.40	-1.52	-1.52				
	29.550	0.00	0.00	0.00	-0.00	-0.00				
Tensión pésima		-0.00	-0.00	21.68	-2.96	0.00				
Tensión admisible			-3.98	23.95	-3.98	23.95				

Se cumple la verificación

Viga 2. Tras el hormigonado de la losa										
	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
	(m)	σ_{min} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)

	-0.400	-0.00	-0.00	-0.00	0.00	0.00
	0.000	4.52	5.15	5.15	-1.46	-1.46
	0.600	9.12	10.32	10.32	-2.16	-2.16
	1.457	9.40	10.51	10.51	-1.10	-1.10
	2.600	9.46	10.42	10.42	0.41	0.41
	2.915	9.48	10.39	10.39	0.82	0.82
	3.600	9.79	10.67	10.67	1.44	1.44
	4.372	10.39	11.26	11.26	2.11	2.11
	5.512	10.85	11.65	11.65	3.22	3.22
	5.830	10.72	11.48	11.48	3.60	3.60
	6.600	11.10	11.84	11.84	4.10	4.10
	7.287	11.79	12.57	12.57	4.45	4.45
	7.600	11.76	12.51	12.51	4.70	4.70
	8.745	12.39	13.12	13.12	5.42	5.42
	10.202	11.72	12.29	12.29	6.26	6.26
	11.660	11.05	11.47	11.47	7.11	7.11
	13.117	10.83	11.19	11.19	7.39	7.39
	14.575	10.60	10.91	10.91	7.67	7.67
	16.032	10.83	11.19	11.19	7.39	7.39
	17.490	11.05	11.47	11.47	7.11	7.11
	18.947	11.72	12.29	12.29	6.26	6.26
	20.405	12.39	13.12	13.12	5.42	5.42
	21.550	11.76	12.51	12.51	4.70	4.70
	21.862	11.79	12.57	12.57	4.45	4.45
	22.550	11.10	11.84	11.84	4.10	4.10
	23.320	10.72	11.48	11.48	3.60	3.60
	23.638	10.85	11.65	11.65	3.22	3.22
	24.778	10.39	11.26	11.26	2.11	2.11
	25.550	9.79	10.67	10.67	1.44	1.44
	26.235	9.48	10.39	10.39	0.82	0.82
	26.550	9.46	10.42	10.42	0.41	0.41
	27.692	9.40	10.51	10.51	-1.10	-1.10
	28.550	9.12	10.32	10.32	-2.16	-2.16
	29.150	4.52	5.15	5.15	-1.46	-1.46
	29.550	0.00	0.00	0.00	-0.00	-0.00
Tensión pésima		-0.00	-0.00	13.12	-2.16	7.67
Tensión admisible			-4.45	30.00	-4.45	30.00

Se cumple la verificación

Viga 2. Tras la disposición de la superestructura

	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.000	4.52	5.15	5.15	-1.46	-1.46	0.00	0.00	0.00	0.00
	0.600	8.93	10.09	10.09	-2.09	-2.09	0.05	0.05	0.07	0.07
	1.457	8.94	9.98	9.98	-0.94	-0.94	0.11	0.11	0.17	0.17
	2.600	8.67	9.51	9.51	0.69	0.69	0.19	0.19	0.30	0.30
	2.915	8.61	9.39	9.39	1.13	1.13	0.22	0.22	0.34	0.34
	3.600	8.72	9.45	9.45	1.82	1.82	0.26	0.26	0.41	0.41
	4.372	9.13	9.82	9.82	2.56	2.56	0.31	0.31	0.48	0.48
	5.512	9.33	9.92	9.92	3.77	3.77	0.38	0.38	0.58	0.58
	5.830	9.13	9.66	9.66	4.17	4.17	0.39	0.39	0.61	0.61
	6.600	9.38	9.87	9.87	4.72	4.72	0.43	0.43	0.67	0.67
	7.287	9.95	10.46	10.46	5.12	5.12	0.46	0.46	0.72	0.72
	7.600	9.86	10.33	10.33	5.39	5.39	0.48	0.48	0.74	0.74
	8.745	10.33	10.76	10.76	6.17	6.17	0.52	0.52	0.80	0.80
	10.202	9.47	9.73	9.73	7.08	7.08	0.57	0.57	0.88	0.88
	11.660	8.67	8.74	8.74	7.98	7.98	0.60	0.60	0.93	0.93
	13.117	8.37	8.38	8.38	8.29	8.29	0.62	0.62	0.96	0.96
	14.575	8.10	8.08	8.08	8.58	8.58	0.63	0.63	0.97	0.97
	16.032	8.37	8.38	8.38	8.29	8.29	0.62	0.62	0.96	0.96
	17.490	8.67	8.74	8.74	7.98	7.98	0.60	0.60	0.93	0.93

	18.947	9.47	9.73	9.73	7.08	7.08	0.57	0.57	0.88	0.88
	20.405	10.33	10.76	10.76	6.17	6.17	0.52	0.52	0.80	0.80
	21.550	9.86	10.33	10.33	5.39	5.39	0.48	0.48	0.74	0.74
	21.862	9.95	10.46	10.46	5.12	5.12	0.46	0.46	0.72	0.72
	22.550	9.38	9.87	9.87	4.72	4.72	0.43	0.43	0.67	0.67
	23.320	9.13	9.66	9.66	4.17	4.17	0.39	0.39	0.61	0.61
	23.638	9.33	9.92	9.92	3.77	3.77	0.38	0.38	0.58	0.58
	24.778	9.13	9.82	9.82	2.56	2.56	0.31	0.31	0.48	0.48
	25.550	8.72	9.45	9.45	1.82	1.82	0.26	0.26	0.41	0.41
	26.235	8.61	9.39	9.39	1.13	1.13	0.22	0.22	0.34	0.34
	26.550	8.67	9.51	9.51	0.69	0.69	0.19	0.19	0.30	0.30
	27.692	8.94	9.98	9.98	-0.94	-0.94	0.11	0.11	0.17	0.17
	28.550	8.93	10.09	10.09	-2.09	-2.09	0.05	0.05	0.07	0.07
	29.150	4.52	5.15	5.15	-1.46	-1.46	0.00	0.00	0.00	0.00
	29.550	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
Tensión pésima		-0.00	-0.00	10.76	-2.09	8.58	0.00	0.63	0.00	0.97
Tensión admisible			-3.54		-3.54			11.25		11.25

Se cumple la verificación

Viga 2. Tras la apertura al tráfico

	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
		σ_{min}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}	σ_{min}	σ_{max}
	(m)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)	(MPa)
	-0.400	-0.00	-0.00	-0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0.000	4.51	5.14	5.16	-1.46	-1.46	-0.00	0.00	-0.00	0.00
	0.600	8.19	9.24	10.12	-2.10	-1.84	0.04	0.22	0.06	0.35
	1.457	7.19	7.98	10.03	-0.95	-0.32	0.10	0.54	0.16	0.84
	2.600	5.70	6.12	9.58	0.67	1.74	0.18	0.92	0.28	1.43
	2.915	5.38	5.71	9.48	1.11	2.28	0.20	1.01	0.31	1.57
	3.600	4.85	5.02	9.55	1.79	3.20	0.24	1.22	0.37	1.89
	4.372	4.64	4.70	9.94	2.53	4.16	0.28	1.42	0.44	2.20
	5.512	3.98	3.91	10.06	3.72	5.65	0.35	1.68	0.54	2.61
	5.830	3.51	3.39	9.81	4.13	6.14	0.36	1.75	0.56	2.72
	6.600	3.37	3.22	10.04	4.67	6.84	0.39	1.89	0.61	2.92
	7.287	3.55	3.38	10.63	5.06	7.36	0.42	2.02	0.66	3.12
	7.600	3.26	3.06	10.51	5.34	7.70	0.44	2.07	0.68	3.20
	8.745	3.22	2.98	10.96	6.11	8.65	0.48	2.24	0.74	3.46
	10.202	1.68	1.32	9.95	7.01	9.76	0.52	2.42	0.80	3.74
	11.660	0.31	-0.16	8.97	7.90	10.82	0.55	2.57	0.85	3.96
	13.117	-0.18	-0.69	8.63	8.21	11.18	0.57	2.62	0.87	4.05
	14.575	-0.52	-1.05	8.33	8.50	11.49	0.57	2.64	0.88	4.08
	16.032	-0.18	-0.69	8.63	8.21	11.18	0.57	2.62	0.87	4.05
	17.490	0.31	-0.16	8.97	7.90	10.82	0.55	2.57	0.85	3.96
	18.947	1.68	1.32	9.95	7.01	9.76	0.52	2.42	0.80	3.74
	20.405	3.22	2.98	10.96	6.11	8.65	0.48	2.24	0.74	3.46
	21.550	3.26	3.06	10.51	5.34	7.70	0.44	2.07	0.68	3.20
	21.862	3.55	3.38	10.63	5.06	7.36	0.42	2.02	0.66	3.12
	22.550	3.37	3.22	10.04	4.67	6.84	0.39	1.89	0.61	2.92
	23.320	3.51	3.39	9.81	4.13	6.14	0.36	1.75	0.56	2.72
	23.638	3.98	3.91	10.06	3.72	5.65	0.35	1.68	0.54	2.61
	24.778	4.64	4.70	9.94	2.53	4.16	0.28	1.42	0.44	2.20
	25.550	4.85	5.02	9.55	1.79	3.20	0.24	1.22	0.37	1.89
	26.235	5.38	5.71	9.48	1.11	2.28	0.20	1.01	0.31	1.57
	26.550	5.70	6.12	9.58	0.67	1.74	0.18	0.92	0.28	1.43
	27.692	7.19	7.98	10.03	-0.95	-0.32	0.10	0.54	0.16	0.84
	28.550	8.19	9.24	10.12	-2.10	-1.84	0.04	0.22	0.06	0.35
	29.150	4.51	5.14	5.16	-1.46	-1.46	-0.00	0.00	-0.00	0.00
	29.550	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00	0.00	0.00
Tensión pésima		-0.52	-1.05	10.96	-2.10	11.49	-0.00	2.64	-0.00	4.08
Tensión admisible			-3.54		-3.54			15.00		15.00

Se cumple la verificación

Viga 2. A tiempo infinito										
	Distancia al eje 1	Cables pretesado	Viga				Losa			
			Fibra inferior		Fibra superior		Fibra inferior		Fibra superior	
	(m)	σ_{min} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)	σ_{min} (MPa)	σ_{max} (MPa)
	-0.400	0.00	0.01	0.01	-0.01	-0.01	0.00	0.00	0.00	0.00
	0.000	3.06	3.04	3.07	3.34	3.34	-1.42	-1.41	-1.00	-0.99
	0.600	6.25	6.56	7.44	3.02	3.29	-1.36	-1.17	-1.03	-0.75
	1.457	5.23	5.30	7.35	3.98	4.61	-1.23	-0.79	-0.89	-0.21
	2.600	3.58	3.46	6.92	5.30	6.37	-1.07	-0.33	-0.70	0.46
	2.915	3.19	3.03	6.80	5.67	6.84	-1.02	-0.21	-0.65	0.62
	3.600	2.57	2.34	6.87	6.24	7.65	-0.94	0.04	-0.56	0.96
	4.372	2.23	1.95	7.20	6.86	8.50	-0.85	0.28	-0.46	1.30
	5.512	1.47	1.10	7.25	7.86	9.79	-0.72	0.61	-0.32	1.75
	5.830	1.00	0.58	7.00	8.18	10.19	-0.69	0.71	-0.27	1.89
	6.600	0.86	0.42	7.24	8.64	10.80	-0.62	0.88	-0.20	2.11
	7.287	0.95	0.49	7.74	8.99	11.29	-0.56	1.03	-0.15	2.31
	7.600	0.66	0.18	7.63	9.21	11.57	-0.53	1.10	-0.12	2.41
	8.745	0.52	-0.02	7.97	9.86	12.41	-0.44	1.32	-0.03	2.69
	10.202	-0.92	-1.56	7.06	10.58	13.33	-0.36	1.54	0.09	3.03
	11.660	-2.20	-2.94	6.20	11.27	14.19	-0.29	1.72	0.19	3.31
	13.117	-2.66	-3.43	5.89	11.52	14.49	-0.26	1.79	0.23	3.41
	14.575	-2.96	-3.75	5.63	11.74	14.73	-0.25	1.82	0.26	3.46
	16.032	-2.66	-3.43	5.89	11.52	14.49	-0.26	1.79	0.23	3.41
	17.490	-2.20	-2.94	6.20	11.27	14.19	-0.29	1.72	0.19	3.31
	18.947	-0.92	-1.56	7.06	10.58	13.33	-0.36	1.54	0.09	3.03
	20.405	0.52	-0.02	7.97	9.86	12.41	-0.44	1.32	-0.03	2.69
	21.550	0.66	0.18	7.63	9.21	11.57	-0.53	1.10	-0.12	2.41
	21.862	0.95	0.49	7.74	8.99	11.29	-0.56	1.03	-0.15	2.31
	22.550	0.86	0.42	7.24	8.64	10.80	-0.62	0.88	-0.20	2.11
	23.320	1.00	0.58	7.00	8.18	10.19	-0.69	0.71	-0.27	1.89
	23.638	1.47	1.10	7.25	7.86	9.79	-0.72	0.61	-0.32	1.75
	24.778	2.23	1.95	7.20	6.86	8.50	-0.85	0.28	-0.46	1.30
	25.550	2.57	2.34	6.87	6.24	7.65	-0.94	0.04	-0.56	0.96
	26.235	3.19	3.03	6.80	5.67	6.84	-1.02	-0.21	-0.65	0.62
	26.550	3.58	3.46	6.92	5.30	6.37	-1.07	-0.33	-0.70	0.46
	27.692	5.23	5.30	7.35	3.98	4.61	-1.23	-0.79	-0.89	-0.21
	28.550	6.25	6.56	7.44	3.02	3.29	-1.36	-1.17	-1.03	-0.75
	29.150	3.06	3.04	3.07	3.34	3.34	-1.42	-1.41	-1.00	-0.99
	29.550	0.00	0.01	0.01	-0.01	-0.01	0.00	0.00	0.00	0.00
Tensión pésima		-2.96	-3.75	7.97	-0.01	14.73	-1.42	1.82	-1.03	3.46
Tensión admisible			-3.54		-3.54			15.00		15.00

No se cumple la verificación

2.4 Resumen de verificaciones

Viga 2. Estado límite de Servicio. Combinación de Servicio I. Verifica la comprobación.

Viga 2. Estado límite de Servicio. Combinación de Servicio III. A tiempo infinito. Viga 2. Supera el límite de tracción.

3 VERIFICACIÓN DEL EL FISURACIÓN EN LAS VIGAS

Variables definidas en el artículo 5.7.3.3.2 de la AASHTO-2010

s_d	:	Distancia al eje de apoyo 1 de la viga.
N_d	:	Axil de cálculo. Compresiones positivas
M_d	:	Flector de cálculo. Positivo tracciona la fibra inferior.
d_c	:	Distancia del cdg de la barra más traccionada a la fibra del hormigón más traccionada.

h	:	Canto de la sección.
E_s	:	Módulo elástico de la armadura.
σ_s	:	Tensión en la armadura en la sección fisurada con los esfuerzos de cálculo.
W_k	:	Abertura media de fisura
Sep	:	Separación entre armaduras.
Sep_{adm}	:	Separación máxima admisible entre armadures.

NOTA : Sólo se listan los valores para los que se supera el valor de la tensión máxima de tracción (f_r).

NOTA : El cálculo de las aberturas de fisura se lleva a cabo cuando N_d > 98.1 kN o M_d > 98.1 kNm.

3.1 Estado límite de Servicio. Combinación de Servicio I

No procede la comprobación.

3.2 Estado límite de Servicio. Combinación de Servicio III

Cálculo de las aberturas de fisura

Viga 2:

Factor de exposición, γ_E : 1.0

Viga 2. A tiempo infinito

s_d (m)	N_d (kN)	M_d (kNm)	d_c (m)	h (m)	E_s (MPa)	σ_s (MPa)	W_k (mm)	Sep (m)	Sep_{adm} (m)
-0.400									
0.000									
0.600									
1.457									
2.600									
2.915									
3.600									
4.372									
5.512									
5.830									
6.600									
7.287									
7.600									
8.745									
10.202									
11.660									
13.117									
14.575	0.0	5363.8	0.048	1.720	199999997	10.34	0.00	0.043	1.000
16.032									
17.490									
18.947									
20.405									
21.550									
21.862									
22.550									
23.320									
23.638									
24.778									
25.550									
26.235									
26.550									
27.692									
28.550									
29.150									
29.550									

Se cumple la verificación

3.3 Resumen de verificaciones

Viga 2. Estado límite de Servicio. Combinación de Servicio I. Verifica la comprobación.

Viga 2. Estado límite de Servicio. Combinación de Servicio III. Verifica la comprobación.

4 ROTURA POR FLEXIÓN EN LAS VIGAS

Armaduras dispuestas

Fila	Barras	Diámetro	Cota (mm)	Longitud de recorte inicial (m)	Longitud de recorte final (m)
1	4	Ø20	0.048	0.000	0.000
2	2	Ø12	0.161	0.000	0.000
3	2	Ø12	1.354	0.000	0.000
4	2	Ø12	1.476	0.000	0.000

M_{uA}: Momento mayorado sin decalar.
M_{uB}: Momento mayorado decalado.
M_n : Momento nominal.
M_r : Momento resistente mayorado (Mn · FR)
Sd : Longitud de decalaje
FR : Factor de resistencia

4.1 Estado límite de Resistencia. Combinación de Resistencia I

Viga 2:

Viga 2. Tras la transferencia del pretesado

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	335.5	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005	
0.600	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097	
1.457	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314	
2.600	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050	
2.915	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943	
3.600	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746	
4.372	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719	
5.512	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604	
5.830	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543	
6.600	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497	
7.287	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551	
7.600	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545	
8.745	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514	
10.202	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344	
11.660	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223	
13.117	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182	
14.575	1340.3	2.439	1340.3	8285.7	1.000	8285.7	6.182	
16.032	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182	
17.490	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223	
18.947	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344	
20.405	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514	
21.550	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545	
21.862	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551	

22.550	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497
23.320	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543
23.638	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604
24.778	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719
25.550	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746
26.235	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943
26.550	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050
27.692	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314
28.550	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097
29.150	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005
29.550	-0.0	0.000	335.5	0.0	0.000	0.0	10.000

Viga 2. Tras el hormigonado de la losa

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	754.1	0.0	0.000	0.0	10.000	
0.000	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
0.600	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
1.457	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
2.600	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
2.915	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
3.600	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
4.372	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
5.512	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
5.830	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
6.600	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
7.287	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
7.600	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
8.745	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
10.202	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
11.660	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
13.117	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
14.575	3037.4	2.414	3037.4	8285.7	1.000	8285.7	2.728	
16.032	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
17.490	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
18.947	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
20.405	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
21.550	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
21.862	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
22.550	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
23.320	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
23.638	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
24.778	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
25.550	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
26.235	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
26.550	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
27.692	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
28.550	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
29.150	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
29.550	-0.0	0.000	754.1	0.0	0.000	0.0	10.000	

Viga 2. Tras la disposición de la superestructura

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	1131.9	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497	
0.600	293.3	2.721	1575.9	4737.2	1.000	4737.2	3.006	
1.457	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725	
2.600	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663	
2.915	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662	
3.600	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628	
4.372	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637	
5.512	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632	

5.830	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624
6.600	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659
7.287	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714
7.600	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724
8.745	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779
10.202	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740
11.660	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700
13.117	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692
14.575	3970.5	2.709	3970.5	10685.2	1.000	10685.2	2.691
16.032	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692
17.490	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700
18.947	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740
20.405	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779
21.550	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724
21.862	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714
22.550	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659
23.320	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624
23.638	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632
24.778	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637
25.550	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628
26.235	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662
26.550	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663
27.692	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725
28.550	293.4	2.721	1575.9	4737.2	1.000	4737.2	3.006
29.150	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497
29.550	-0.0	0.000	1131.9	0.0	0.000	0.0	10.000

Viga 2. Tras la apertura al tráfico

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	2707.3	0.0	0.000	0.0	10.000	
0.000	2.3	0.000	3139.1	3304.0	1.000	3304.0	1.053	
0.600	722.2	2.722	3727.5	4737.2	1.000	4737.2	1.271	
1.457	1751.1	2.725	4487.0	5196.8	1.000	5196.8	1.158	
2.600	3019.0	2.717	5406.1	6231.5	1.000	6231.5	1.153	
2.915	3347.5	2.712	5655.3	6544.5	1.000	6544.5	1.157	
3.600	4005.0	2.710	6109.9	7013.4	1.000	7013.4	1.148	
4.372	4668.4	2.701	6575.1	7603.9	1.000	7603.9	1.156	
5.512	5578.9	2.694	7214.9	8404.5	1.000	8404.5	1.165	
5.830	5833.0	2.689	7381.5	8599.5	1.000	8599.5	1.165	
6.600	6297.8	2.689	7716.3	9112.3	1.000	9112.3	1.181	
7.287	6712.8	2.686	7988.9	9622.7	1.000	9622.7	1.205	
7.600	6901.4	2.686	8109.2	9799.6	1.000	9799.6	1.208	
8.745	7503.3	2.682	8500.3	10510.0	1.000	10510.0	1.236	
10.202	8086.7	2.668	8735.5	10656.3	1.000	10656.3	1.220	
11.660	8588.4	2.657	8849.0	10694.4	1.000	10694.4	1.209	
13.117	8768.0	2.650	8868.4	10689.0	1.000	10689.0	1.205	
14.575	8868.4	2.629	8868.4	10685.2	1.000	10685.2	1.205	
16.032	8768.0	2.650	8868.4	10689.0	1.000	10689.0	1.205	
17.490	8588.4	2.657	8849.0	10694.4	1.000	10694.4	1.209	
18.947	8086.7	2.668	8735.5	10656.3	1.000	10656.3	1.220	
20.405	7503.3	2.682	8500.3	10510.0	1.000	10510.0	1.236	
21.550	6901.4	2.686	8109.2	9799.6	1.000	9799.6	1.208	
21.862	6712.8	2.686	7988.9	9622.7	1.000	9622.7	1.205	
22.550	6297.8	2.689	7716.3	9112.3	1.000	9112.3	1.181	
23.320	5833.0	2.689	7381.5	8599.5	1.000	8599.5	1.165	
23.638	5578.9	2.694	7214.9	8404.5	1.000	8404.5	1.165	
24.778	4668.4	2.701	6575.1	7603.9	1.000	7603.9	1.156	
25.550	4005.0	2.710	6109.9	7013.4	1.000	7013.4	1.148	
26.235	3347.5	2.712	5655.3	6544.5	1.000	6544.5	1.157	
26.550	3019.0	2.717	5406.1	6231.5	1.000	6231.5	1.153	
27.692	1751.1	2.725	4487.0	5196.8	1.000	5196.8	1.158	
28.550	722.2	2.722	3727.5	4737.2	1.000	4737.2	1.271	
29.150	2.3	0.000	3139.1	3304.0	1.000	3304.0	1.053	
29.550	0.0	0.000	2707.3	0.0	0.000	0.0	10.000	

Viga 2. A tiempo infinito

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	2707.3	0.0	0.000	0.0	10.000	
0.000	2.3	0.000	3139.1	3304.0	1.000	3304.0	1.053	
0.600	722.2	2.722	3727.5	4737.2	1.000	4737.2	1.271	
1.457	1751.1	2.725	4487.0	5196.8	1.000	5196.8	1.158	
2.600	3019.0	2.717	5406.1	6231.5	1.000	6231.5	1.153	
2.915	3347.5	2.712	5655.3	6544.5	1.000	6544.5	1.157	
3.600	4005.0	2.710	6109.9	7013.4	1.000	7013.4	1.148	
4.372	4668.4	2.701	6575.1	7603.9	1.000	7603.9	1.156	
5.512	5578.9	2.694	7214.9	8404.5	1.000	8404.5	1.165	
5.830	5833.0	2.689	7381.5	8599.5	1.000	8599.5	1.165	
6.600	6297.8	2.689	7716.3	9112.3	1.000	9112.3	1.181	
7.287	6712.8	2.686	7988.9	9622.7	1.000	9622.7	1.205	
7.600	6901.4	2.686	8109.2	9799.6	1.000	9799.6	1.208	
8.745	7503.3	2.682	8500.3	10510.0	1.000	10510.0	1.236	
10.202	8086.7	2.668	8735.5	10656.3	1.000	10656.3	1.220	
11.660	8588.4	2.657	8849.0	10694.4	1.000	10694.4	1.209	
13.117	8768.0	2.650	8868.4	10689.0	1.000	10689.0	1.205	
14.575	8868.4	2.629	8868.4	10685.2	1.000	10685.2	1.205	
16.032	8768.0	2.650	8868.4	10689.0	1.000	10689.0	1.205	
17.490	8588.4	2.657	8849.0	10694.4	1.000	10694.4	1.209	
18.947	8086.7	2.668	8735.5	10656.3	1.000	10656.3	1.220	
20.405	7503.3	2.682	8500.3	10510.0	1.000	10510.0	1.236	
21.550	6901.4	2.686	8109.2	9799.6	1.000	9799.6	1.208	
21.862	6712.8	2.686	7988.9	9622.7	1.000	9622.7	1.205	
22.550	6297.8	2.689	7716.3	9112.3	1.000	9112.3	1.181	
23.320	5833.0	2.689	7381.5	8599.5	1.000	8599.5	1.165	
23.638	5578.9	2.694	7214.9	8404.5	1.000	8404.5	1.165	
24.778	4668.4	2.701	6575.1	7603.9	1.000	7603.9	1.156	
25.550	4005.0	2.710	6109.9	7013.4	1.000	7013.4	1.148	
26.235	3347.5	2.712	5655.3	6544.5	1.000	6544.5	1.157	
26.550	3019.0	2.717	5406.1	6231.5	1.000	6231.5	1.153	
27.692	1751.1	2.725	4487.0	5196.8	1.000	5196.8	1.158	
28.550	722.2	2.722	3727.5	4737.2	1.000	4737.2	1.271	
29.150	2.3	0.000	3139.1	3304.0	1.000	3304.0	1.053	
29.550	0.0	0.000	2707.3	0.0	0.000	0.0	10.000	

4.2 Estado límite de Resistencia. Combinación de Resistencia II

Viga 2:

Viga 2. Tras la transferencia del pretesado

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	335.5	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005	
0.600	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097	
1.457	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314	
2.600	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050	
2.915	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943	
3.600	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746	
4.372	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719	
5.512	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604	
5.830	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543	
6.600	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497	
7.287	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551	
7.600	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545	

8.745	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514
10.202	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344
11.660	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223
13.117	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182
14.575	1340.3	2.439	1340.3	8285.7	1.000	8285.7	6.182
16.032	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182
17.490	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223
18.947	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344
20.405	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514
21.550	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545
21.862	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551
22.550	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497
23.320	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543
23.638	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604
24.778	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719
25.550	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746
26.235	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943
26.550	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050
27.692	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314
28.550	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097
29.150	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005
29.550	-0.0	0.000	335.5	0.0	0.000	0.0	10.000

Viga 2. Tras el hormigonado de la losa

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	754.1	0.0	0.000	0.0	10.000	
0.000	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
0.600	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
1.457	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
2.600	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
2.915	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
3.600	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
4.372	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
5.512	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
5.830	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
6.600	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
7.287	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
7.600	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
8.745	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
10.202	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
11.660	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
13.117	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
14.575	3037.4	2.414	3037.4	8285.7	1.000	8285.7	2.728	
16.032	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
17.490	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
18.947	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
20.405	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
21.550	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
21.862	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
22.550	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
23.320	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
23.638	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
24.778	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
25.550	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
26.235	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
26.550	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
27.692	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
28.550	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
29.150	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
29.550	-0.0	0.000	754.1	0.0	0.000	0.0	10.000	

Viga 2. Tras la disposición de la superestructura

Distancia al	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones

eje 1 (m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)	
-0.400	0.0	0.000	1131.9	0.0	0.000	0.0	10.000
0.000	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497
0.600	293.3	2.721	1575.9	4737.2	1.000	4737.2	3.006
1.457	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725
2.600	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663
2.915	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662
3.600	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628
4.372	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637
5.512	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632
5.830	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624
6.600	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659
7.287	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714
7.600	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724
8.745	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779
10.202	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740
11.660	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700
13.117	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692
14.575	3970.5	2.709	3970.5	10685.2	1.000	10685.2	2.691
16.032	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692
17.490	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700
18.947	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740
20.405	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779
21.550	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724
21.862	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714
22.550	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659
23.320	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624
23.638	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632
24.778	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637
25.550	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628
26.235	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662
26.550	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663
27.692	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725
28.550	293.4	2.721	1575.9	4737.2	1.000	4737.2	3.006
29.150	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497
29.550	-0.0	0.000	1131.9	0.0	0.000	0.0	10.000

Viga 2. Tras la apertura al tráfico

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	2347.8	0.0	0.000	0.0	10.000	
0.000	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213	
0.600	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464	
1.457	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333	
2.600	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324	
2.915	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329	
3.600	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317	
4.372	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326	
5.512	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335	
5.830	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334	
6.600	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352	
7.287	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	
7.600	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
8.745	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
10.202	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
11.660	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
13.117	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
14.575	7748.9	2.647	7748.9	10685.2	1.000	10685.2	1.379	
16.032	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
17.490	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
18.947	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
20.405	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
21.550	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
21.862	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	

22.550	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352
23.320	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334
23.638	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335
24.778	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326
25.550	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317
26.235	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329
26.550	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324
27.692	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333
28.550	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464
29.150	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213
29.550	0.0	0.000	2347.8	0.0	0.000	0.0	10.000

Viga 2. A tiempo infinito

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	2347.8	0.0	0.000	0.0	10.000	
0.000	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213	
0.600	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464	
1.457	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333	
2.600	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324	
2.915	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329	
3.600	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317	
4.372	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326	
5.512	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335	
5.830	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334	
6.600	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352	
7.287	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	
7.600	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
8.745	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
10.202	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
11.660	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
13.117	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
14.575	7748.9	2.647	7748.9	10685.2	1.000	10685.2	1.379	
16.032	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
17.490	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
18.947	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
20.405	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
21.550	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
21.862	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	
22.550	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352	
23.320	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334	
23.638	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335	
24.778	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326	
25.550	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317	
26.235	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329	
26.550	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324	
27.692	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333	
28.550	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464	
29.150	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213	
29.550	0.0	0.000	2347.8	0.0	0.000	0.0	10.000	

4.3 Estado límite de Resistencia. Combinación de Resistencia III

Viga 2:

Viga 2. Tras la transferencia del pretesado

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	335.5	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005	

0.600	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097
1.457	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314
2.600	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050
2.915	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943
3.600	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746
4.372	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719
5.512	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604
5.830	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543
6.600	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497
7.287	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551
7.600	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545
8.745	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514
10.202	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344
11.660	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223
13.117	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182
14.575	1340.3	2.439	1340.3	8285.7	1.000	8285.7	6.182
16.032	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182
17.490	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223
18.947	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344
20.405	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514
21.550	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545
21.862	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551
22.550	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497
23.320	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543
23.638	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604
24.778	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719
25.550	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746
26.235	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943
26.550	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050
27.692	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314
28.550	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097
29.150	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005
29.550	-0.0	0.000	335.5	0.0	0.000	0.0	10.000

Viga 2. Tras el hormigonado de la losa

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	754.1	0.0	0.000	0.0	10.000	
0.000	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
0.600	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
1.457	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
2.600	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
2.915	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
3.600	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
4.372	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
5.512	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
5.830	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
6.600	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
7.287	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
7.600	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
8.745	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
10.202	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
11.660	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
13.117	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
14.575	3037.4	2.414	3037.4	8285.7	1.000	8285.7	2.728	
16.032	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	
17.490	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
18.947	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
20.405	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
21.550	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
21.862	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
22.550	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
23.320	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
23.638	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
24.778	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	

25.550	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987
26.235	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078
26.550	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126
27.692	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244
28.550	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593
29.150	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115
29.550	-0.0	0.000	754.1	0.0	0.000	0.0	10.000

Viga 2. Tras la disposición de la superestructura

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	1131.9	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497	
0.600	293.3	2.721	1575.9	4737.2	1.000	4737.2	3.006	
1.457	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725	
2.600	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663	
2.915	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662	
3.600	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628	
4.372	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637	
5.512	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632	
5.830	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624	
6.600	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659	
7.287	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714	
7.600	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724	
8.745	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779	
10.202	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740	
11.660	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700	
13.117	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692	
14.575	3970.5	2.709	3970.5	10685.2	1.000	10685.2	2.691	
16.032	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692	
17.490	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700	
18.947	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740	
20.405	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779	
21.550	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724	
21.862	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714	
22.550	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659	
23.320	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624	
23.638	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632	
24.778	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637	
25.550	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628	
26.235	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662	
26.550	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663	
27.692	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725	
28.550	293.4	2.721	1575.9	4737.2	1.000	4737.2	3.006	
29.150	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497	
29.550	-0.0	0.000	1131.9	0.0	0.000	0.0	10.000	

Viga 2. Tras la apertura al tráfico

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	1347.8	0.0	0.000	0.0	10.000	
0.000	-0.3	0.000	1572.7	3304.0	1.000	3304.0	2.101	
0.600	349.7	2.729	1872.3	4737.2	1.000	4737.2	2.530	
1.457	849.9	2.734	2266.7	5196.8	1.000	5196.8	2.293	
2.600	1498.5	2.735	2775.3	6231.5	1.000	6231.5	2.245	
2.915	1673.6	2.732	2914.3	6544.5	1.000	6544.5	2.246	
3.600	1997.5	2.737	3161.4	7013.4	1.000	7013.4	2.218	
4.372	2348.6	2.734	3417.1	7603.9	1.000	7603.9	2.225	
5.512	2854.3	2.734	3778.2	8404.5	1.000	8404.5	2.224	
5.830	2995.4	2.730	3875.4	8599.5	1.000	8599.5	2.219	
6.600	3249.9	2.733	4051.9	9112.3	1.000	9112.3	2.249	
7.287	3477.1	2.733	4193.9	9622.7	1.000	9622.7	2.294	
7.600	3580.4	2.735	4255.7	9799.6	1.000	9799.6	2.303	

8.745	3929.6	2.738	4468.9	10510.0	1.000	10510.0	2.352
10.202	4230.9	2.736	4594.6	10656.3	1.000	10656.3	2.319
11.660	4502.7	2.733	4673.4	10694.4	1.000	10694.4	2.288
13.117	4608.3	2.725	4684.0	10689.0	1.000	10689.0	2.282
14.575	4684.0	2.709	4684.0	10685.2	1.000	10685.2	2.281
16.032	4608.3	2.725	4684.0	10689.0	1.000	10689.0	2.282
17.490	4502.7	2.733	4673.4	10694.4	1.000	10694.4	2.288
18.947	4230.9	2.736	4594.6	10656.3	1.000	10656.3	2.319
20.405	3929.6	2.738	4468.9	10510.0	1.000	10510.0	2.352
21.550	3580.4	2.735	4255.7	9799.6	1.000	9799.6	2.303
21.862	3477.1	2.733	4193.9	9622.7	1.000	9622.7	2.294
22.550	3249.9	2.733	4051.9	9112.3	1.000	9112.3	2.249
23.320	2995.4	2.730	3875.4	8599.5	1.000	8599.5	2.219
23.638	2854.3	2.734	3778.2	8404.5	1.000	8404.5	2.224
24.778	2348.6	2.734	3417.1	7603.9	1.000	7603.9	2.225
25.550	1997.5	2.737	3161.4	7013.4	1.000	7013.4	2.218
26.235	1673.6	2.732	2914.3	6544.5	1.000	6544.5	2.246
26.550	1498.5	2.735	2775.3	6231.5	1.000	6231.5	2.245
27.692	849.9	2.734	2266.7	5196.8	1.000	5196.8	2.293
28.550	349.7	2.729	1872.3	4737.2	1.000	4737.2	2.530
29.150	-0.3	0.000	1572.7	3304.0	1.000	3304.0	2.101
29.550	-0.0	0.000	1347.8	0.0	0.000	0.0	10.000

Viga 2. A tiempo infinito

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	1347.8	0.0	0.000	0.0	10.000	
0.000	-0.3	0.000	1572.7	3304.0	1.000	3304.0	2.101	
0.600	349.7	2.729	1872.3	4737.2	1.000	4737.2	2.530	
1.457	849.9	2.734	2266.7	5196.8	1.000	5196.8	2.293	
2.600	1498.5	2.735	2775.3	6231.5	1.000	6231.5	2.245	
2.915	1673.6	2.732	2914.3	6544.5	1.000	6544.5	2.246	
3.600	1997.5	2.737	3161.4	7013.4	1.000	7013.4	2.218	
4.372	2348.6	2.734	3417.1	7603.9	1.000	7603.9	2.225	
5.512	2854.3	2.734	3778.2	8404.5	1.000	8404.5	2.224	
5.830	2995.4	2.730	3875.4	8599.5	1.000	8599.5	2.219	
6.600	3249.9	2.733	4051.9	9112.3	1.000	9112.3	2.249	
7.287	3477.1	2.733	4193.9	9622.7	1.000	9622.7	2.294	
7.600	3580.4	2.735	4255.7	9799.6	1.000	9799.6	2.303	
8.745	3929.6	2.738	4468.9	10510.0	1.000	10510.0	2.352	
10.202	4230.9	2.736	4594.6	10656.3	1.000	10656.3	2.319	
11.660	4502.7	2.733	4673.4	10694.4	1.000	10694.4	2.288	
13.117	4608.3	2.725	4684.0	10689.0	1.000	10689.0	2.282	
14.575	4684.0	2.709	4684.0	10685.2	1.000	10685.2	2.281	
16.032	4608.3	2.725	4684.0	10689.0	1.000	10689.0	2.282	
17.490	4502.7	2.733	4673.4	10694.4	1.000	10694.4	2.288	
18.947	4230.9	2.736	4594.6	10656.3	1.000	10656.3	2.319	
20.405	3929.6	2.738	4468.9	10510.0	1.000	10510.0	2.352	
21.550	3580.4	2.735	4255.7	9799.6	1.000	9799.6	2.303	
21.862	3477.1	2.733	4193.9	9622.7	1.000	9622.7	2.294	
22.550	3249.9	2.733	4051.9	9112.3	1.000	9112.3	2.249	
23.320	2995.4	2.730	3875.4	8599.5	1.000	8599.5	2.219	
23.638	2854.3	2.734	3778.2	8404.5	1.000	8404.5	2.224	
24.778	2348.6	2.734	3417.1	7603.9	1.000	7603.9	2.225	
25.550	1997.5	2.737	3161.4	7013.4	1.000	7013.4	2.218	
26.235	1673.6	2.732	2914.3	6544.5	1.000	6544.5	2.246	
26.550	1498.5	2.735	2775.3	6231.5	1.000	6231.5	2.245	
27.692	849.9	2.734	2266.7	5196.8	1.000	5196.8	2.293	
28.550	349.7	2.729	1872.3	4737.2	1.000	4737.2	2.530	
29.150	-0.3	0.000	1572.7	3304.0	1.000	3304.0	2.101	
29.550	-0.0	0.000	1347.8	0.0	0.000	0.0	10.000	

4.4 Estado límite de Resistencia. Combinación de Resistencia V

Viga 2:

Viga 2. Tras la transferencia del pretesado

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	335.5	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005	
0.600	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097	
1.457	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314	
2.600	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050	
2.915	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943	
3.600	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746	
4.372	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719	
5.512	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604	
5.830	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543	
6.600	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497	
7.287	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551	
7.600	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545	
8.745	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514	
10.202	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344	
11.660	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223	
13.117	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182	
14.575	1340.3	2.439	1340.3	8285.7	1.000	8285.7	6.182	
16.032	1313.5	2.439	1340.3	8285.7	1.000	8285.7	6.182	
17.490	1286.6	2.439	1331.5	8285.7	1.000	8285.7	6.223	
18.947	1206.2	2.439	1304.7	8277.2	1.000	8277.2	6.344	
20.405	1125.7	2.439	1260.3	8209.9	1.000	8209.9	6.514	
21.550	1020.3	2.444	1197.1	7834.9	1.000	7834.9	6.545	
21.862	991.5	2.445	1179.8	7728.9	1.000	7728.9	6.551	
22.550	928.3	2.447	1141.9	7419.3	1.000	7419.3	6.497	
23.320	857.4	2.441	1082.0	7079.6	1.000	7079.6	6.543	
23.638	816.4	2.445	1052.9	6953.5	1.000	6953.5	6.604	
24.778	669.6	2.440	948.4	6372.8	1.000	6372.8	6.719	
25.550	570.1	2.440	877.0	5916.2	1.000	5916.2	6.746	
26.235	481.9	2.433	796.8	5531.7	1.000	5531.7	6.943	
26.550	429.7	2.434	756.0	5329.5	1.000	5329.5	7.050	
27.692	240.6	2.429	608.5	4450.2	1.000	4450.2	7.314	
28.550	98.6	2.423	497.2	4025.5	1.000	4025.5	8.097	
29.150	-0.7	0.000	402.0	2816.3	1.000	2816.3	7.005	
29.550	-0.0	0.000	335.5	0.0	0.000	0.0	10.000	

Viga 2. Tras el hormigonado de la losa

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	754.1	0.0	0.000	0.0	10.000	
0.000	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115	
0.600	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593	
1.457	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244	
2.600	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126	
2.915	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078	
3.600	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987	
4.372	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974	
5.512	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920	
5.830	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892	
6.600	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870	
7.287	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893	
7.600	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891	
8.745	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877	
10.202	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800	
11.660	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747	
13.117	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728	

14.575	3037.4	2.414	3037.4	8285.7	1.000	8285.7	2.728
16.032	2976.6	2.414	3037.4	8285.7	1.000	8285.7	2.728
17.490	2915.8	2.414	3016.5	8285.7	1.000	8285.7	2.747
18.947	2733.5	2.418	2955.7	8277.2	1.000	8277.2	2.800
20.405	2551.1	2.421	2853.3	8209.9	1.000	8209.9	2.877
21.550	2312.3	2.417	2710.4	7834.9	1.000	7834.9	2.891
21.862	2247.1	2.415	2671.3	7728.9	1.000	7728.9	2.893
22.550	2103.7	2.414	2585.5	7419.3	1.000	7419.3	2.870
23.320	1943.1	2.410	2447.6	7079.6	1.000	7079.6	2.892
23.638	1850.3	2.415	2381.0	6953.5	1.000	6953.5	2.920
24.778	1517.6	2.414	2142.7	6372.8	1.000	6372.8	2.974
25.550	1292.0	2.417	1980.9	5916.2	1.000	5916.2	2.987
26.235	1092.0	2.412	1797.1	5531.7	1.000	5531.7	3.078
26.550	973.8	2.414	1705.0	5329.5	1.000	5329.5	3.126
27.692	545.2	2.414	1371.8	4450.2	1.000	4450.2	3.244
28.550	223.5	2.409	1120.5	4025.5	1.000	4025.5	3.593
29.150	-1.6	0.000	904.1	2816.3	1.000	2816.3	3.115
29.550	-0.0	0.000	754.1	0.0	0.000	0.0	10.000

Viga 2. Tras la disposición de la superestructura

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	1131.9	0.0	0.000	0.0	10.000	
0.000	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497	
0.600	293.3	2.721	1575.9	4737.2	1.000	4737.2	3.006	
1.457	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725	
2.600	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663	
2.915	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662	
3.600	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628	
4.372	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637	
5.512	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632	
5.830	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624	
6.600	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659	
7.287	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714	
7.600	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724	
8.745	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779	
10.202	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740	
11.660	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700	
13.117	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692	
14.575	3970.5	2.709	3970.5	10685.2	1.000	10685.2	2.691	
16.032	3901.0	2.712	3970.5	10689.0	1.000	10689.0	2.692	
17.490	3814.3	2.712	3960.7	10694.4	1.000	10694.4	2.700	
18.947	3580.1	2.714	3888.9	10656.3	1.000	10656.3	2.740	
20.405	3329.0	2.718	3781.7	10510.0	1.000	10510.0	2.779	
21.550	3026.6	2.716	3598.1	9799.6	1.000	9799.6	2.724	
21.862	2939.5	2.715	3545.6	9622.7	1.000	9622.7	2.714	
22.550	2748.0	2.716	3427.5	9112.3	1.000	9112.3	2.659	
23.320	2533.5	2.713	3276.8	8599.5	1.000	8599.5	2.624	
23.638	2413.1	2.718	3192.7	8404.5	1.000	8404.5	2.632	
24.778	1981.9	2.720	2883.8	7603.9	1.000	7603.9	2.637	
25.550	1685.1	2.724	2668.5	7013.4	1.000	7013.4	2.628	
26.235	1415.3	2.720	2458.2	6544.5	1.000	6544.5	2.662	
26.550	1265.0	2.724	2339.7	6231.5	1.000	6231.5	2.663	
27.692	713.6	2.726	1907.3	5196.8	1.000	5196.8	2.725	
28.550	293.4	2.721	1575.9	4737.2	1.000	4737.2	3.006	
29.150	-0.7	0.000	1323.4	3304.0	1.000	3304.0	2.497	
29.550	-0.0	0.000	1131.9	0.0	0.000	0.0	10.000	

Viga 2. Tras la apertura al tráfico

Distancia al eje 1 (m)	M_{uA} (kNm)	S_d (m)	M_{uB} (kNm)	M_n (kNm)	FR	M_r (kNm)	M_r/M_u	Observaciones
-0.400	0.0	0.000	2347.8	0.0	0.000	0.0	10.000	
0.000	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213	

0.600	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464
1.457	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333
2.600	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324
2.915	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329
3.600	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317
4.372	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326
5.512	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335
5.830	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334
6.600	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352
7.287	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379
7.600	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384
8.745	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416
10.202	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397
11.660	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383
13.117	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379
14.575	7748.9	2.647	7748.9	10685.2	1.000	10685.2	1.379
16.032	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379
17.490	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383
18.947	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397
20.405	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416
21.550	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384
21.862	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379
22.550	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352
23.320	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334
23.638	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335
24.778	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326
25.550	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317
26.235	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329
26.550	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324
27.692	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333
28.550	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464
29.150	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213
29.550	0.0	0.000	2347.8	0.0	0.000	0.0	10.000

Viga 2. A tiempo infinito

Distancia al eje 1	M_{uA}	S_d	M_{uB}	M_n	FR	M_r	M_r/M_u	Observaciones
(m)	(kNm)	(m)	(kNm)	(kNm)		(kNm)		
-0.400	0.0	0.000	2347.8	0.0	0.000	0.0	10.000	
0.000	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213	
0.600	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464	
1.457	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333	
2.600	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324	
2.915	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329	
3.600	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317	
4.372	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326	
5.512	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335	
5.830	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334	
6.600	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352	
7.287	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	
7.600	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
8.745	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
10.202	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
11.660	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
13.117	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
14.575	7748.9	2.647	7748.9	10685.2	1.000	10685.2	1.379	
16.032	7655.6	2.665	7748.9	10689.0	1.000	10689.0	1.379	
17.490	7497.2	2.671	7731.9	10694.4	1.000	10694.4	1.383	
18.947	7056.6	2.681	7628.5	10656.3	1.000	10656.3	1.397	
20.405	6549.1	2.690	7423.9	10510.0	1.000	10510.0	1.416	
21.550	6015.8	2.693	7080.2	9799.6	1.000	9799.6	1.384	
21.862	5850.3	2.692	6975.7	9622.7	1.000	9622.7	1.379	
22.550	5486.4	2.695	6737.8	9112.3	1.000	9112.3	1.352	
23.320	5078.8	2.694	6444.8	8599.5	1.000	8599.5	1.334	
23.638	4855.3	2.700	6297.0	8404.5	1.000	8404.5	1.335	
24.778	4054.3	2.706	5732.9	7603.9	1.000	7603.9	1.326	

25.550	3474.8	2.713	5324.7	7013.4	1.000	7013.4	1.317
26.235	2905.9	2.714	4926.2	6544.5	1.000	6544.5	1.329
26.550	2618.1	2.719	4706.8	6231.5	1.000	6231.5	1.324
27.692	1514.0	2.725	3898.8	5196.8	1.000	5196.8	1.333
28.550	624.2	2.722	3236.8	4737.2	1.000	4737.2	1.464
29.150	1.6	0.000	2724.8	3304.0	1.000	3304.0	1.213
29.550	0.0	0.000	2347.8	0.0	0.000	0.0	10.000

4.5 Resumen de verificaciones

Viga 2. Estado límite de Resistencia. Combinación de Resistencia I. Verifica la comprobación.

Viga 2. Estado límite de Resistencia. Combinación de Resistencia II. Verifica la comprobación.

Viga 2. Estado límite de Resistencia. Combinación de Resistencia III. Verifica la comprobación.

Viga 2. Estado límite de Resistencia. Combinación de Resistencia V. Verifica la comprobación.

5 ROTURA POR CORTANTE EN LAS VIGAS

V_{u-}, V_{u+}	:	Cortante mínimo y máximo mayorado (sin el pretensado)
V_{p-}, V_{p+}	:	Cortante mínimo y máximo de pretensado
N_{p-}, N_{p+}	:	Axil mínimo y máximo de pretensado
M_{u-}, M_{u+}	:	Flector mínimo y máximo mayorado
V_u	:	Cortante mayorado (sin el pretensado)
V_p	:	Cortante de pretensado (positivo si se opone a V_u)
$V_{n\,max}$	:	Resistencia nominal máxima de las bielas de compresión
V_n	:	Resistencia nominal a cortante (= $V_c + V_s + V_p$)
V_r	:	Resistencia mayorada a cortante
V_c	:	Contribución del hormigón a la resistencia a cortante
V_s	:	Contribución de las armaduras a la resistencia a cortante
A_{st}	:	Armadura de cálculo necesaria a cortante
$A_{st\,min}$	:	Armadura mínima de cortante
$S_{max\,long}$	:	Separación longitudinal máxima entre cercos de cortante
θ	:	Inclinación de las bielas de cortante y torsión
b_0	:	Ancho del alma
d_v	:	Brazo mecánico de la sección
$f_{y\,\alpha d}$	:	Resistencia de cálculo de la armadura de cortante
β	:	Coeficiente para el cálculo de V_c
ν	:	Tensión de corte
ε	:	Deformación en el centro de gravedad de la sección

5.1 Estado límite de Resistencia. Combinación de Resistencia I

Viga 2:

Viga 2. Tras la transferencia del pretesado

Envolvente de esfuerzos.

Distancia al eje 1	Cortantes		Cortantes de pretensado		Axiles y flectores			
	V_{u-}	V_{u+}	V_{p-}	V_{p+}	N_{p-}	N_{p+}	M_{u-}	M_{u+}
(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(kNm)	(kNm)
-0.390	-0.1	-0.1	0.0	0.0	20.3	20.3	-0.0	-0.0
-0.001	-5.0	-3.6	0.0	0.0	811.4	811.4	-1.0	-0.7
0.001	132.5	184.0	0.0	0.0	815.1	815.1	-0.8	-0.6
0.600	127.1	176.5	0.0	0.0	1835.5	1835.5	70.8	98.4
1.457	119.3	165.6	0.0	0.0	2185.1	2185.1	173.1	240.4
2.600	108.9	151.2	0.0	0.0	2523.8	2523.8	309.4	429.7
2.915	106.0	147.2	0.0	0.0	2651.8	2651.8	346.9	481.9

3.600	99.8	138.6	0.0	0.0	2860.6	2860.6	410.5	570.1
4.372	92.8	128.8	0.0	0.0	3164.9	3164.9	482.1	669.6
5.512	82.4	114.4	0.0	0.0	3547.2	3547.2	587.8	816.4
5.830	79.5	110.4	0.0	0.0	3601.9	3601.9	617.3	857.4
6.600	72.5	100.7	0.0	0.0	3834.7	3834.7	668.4	928.3
7.287	66.3	92.0	0.0	0.0	4098.8	4098.8	713.9	991.5
7.600	63.4	88.1	0.0	0.0	4144.7	4144.7	734.6	1020.3
8.745	53.0	73.6	0.0	0.0	4495.7	4495.7	810.5	1125.7
10.202	39.8	55.2	0.0	0.0	4495.7	4495.7	868.4	1206.2
11.660	26.5	36.8	0.0	0.0	4495.7	4495.7	926.4	1286.6
13.117	13.3	18.4	0.0	0.0	4495.7	4495.7	945.7	1125.8
14.575	0.0	0.0	0.0	0.0	4495.7	4495.7	965.0	965.0
16.032	-18.4	-13.3	0.0	0.0	4495.7	4495.7	945.7	1125.8
17.490	-36.8	-26.5	0.0	0.0	4495.7	4495.7	926.4	1286.6
18.947	-55.2	-39.8	0.0	0.0	4495.7	4495.7	868.4	1206.2
20.405	-73.6	-53.0	0.0	0.0	4495.7	4495.7	810.5	1125.7
21.550	-88.1	-63.4	0.0	0.0	4144.7	4144.7	734.6	1020.3
21.862	-92.0	-66.3	0.0	0.0	4098.8	4098.8	713.9	991.5
22.550	-100.7	-72.5	0.0	0.0	3834.7	3834.7	668.4	928.3
23.320	-110.4	-79.5	0.0	0.0	3601.9	3601.9	617.3	857.4
23.638	-114.4	-82.4	0.0	0.0	3547.2	3547.2	587.8	816.4
24.778	-128.8	-92.8	0.0	0.0	3164.9	3164.9	482.1	669.6
25.550	-138.6	-99.8	0.0	0.0	2860.6	2860.6	410.5	570.1
26.235	-147.2	-106.0	0.0	0.0	2651.8	2651.8	346.9	481.9
26.550	-151.2	-108.9	0.0	0.0	2523.8	2523.8	309.4	429.7
27.692	-165.6	-119.3	0.0	0.0	2185.1	2185.1	173.1	240.4
28.550	-176.5	-127.1	0.0	0.0	1835.5	1835.5	70.8	98.4
29.149	-184.0	-132.5	0.0	0.0	815.1	815.1	-0.8	-0.6
29.151	3.6	5.0	0.0	0.0	811.4	811.4	-1.0	-0.7
29.540	0.1	0.1	0.0	0.0	20.3	20.3	-0.0	-0.0

Viga 2. Tras la transferencia del pretesado
Verificación por agotamiento de las bielas de compresión

Distancia al eje 1	V_u	V_{nmax}	V_r	V_u/V_r	Observaciones
(m)	(kN)	(kN)	(kN)		
-0.390	0.1	2211.3	1990.2	0.000	Cumple
-0.001	5.0	2211.3	1990.2	0.003	Cumple
0.001	184.0	2211.3	1990.2	0.092	Cumple
0.600	176.5	2266.7	2040.0	0.087	Cumple
1.457	165.6	2257.6	2031.8	0.082	Cumple
2.600	151.2	2251.8	2026.7	0.075	Cumple
2.915	147.2	2250.3	2025.2	0.073	Cumple
3.600	138.6	2247.6	2022.8	0.069	Cumple
4.372	128.8	2239.5	2015.6	0.064	Cumple
5.512	114.4	2230.5	2007.4	0.057	Cumple
5.830	110.4	2228.7	2005.9	0.055	Cumple
6.600	100.7	2224.0	2001.6	0.050	Cumple
7.287	92.0	2219.7	1997.7	0.046	Cumple
7.600	88.1	2218.4	1996.6	0.044	Cumple
8.745	73.6	2213.6	1992.3	0.037	Cumple
10.202	55.2	2213.6	1992.3	0.028	Cumple
11.660	36.8	2213.6	1992.3	0.018	Cumple
13.117	18.4	2213.6	1992.3	0.009	Cumple
14.575	0.0	2213.6	1992.3	0.000	Cumple
16.032	18.4	2213.6	1992.3	0.009	Cumple
17.490	36.8	2213.6	1992.3	0.018	Cumple
18.947	55.2	2213.6	1992.3	0.028	Cumple
20.405	73.6	2213.6	1992.3	0.037	Cumple
21.550	88.1	2218.4	1996.6	0.044	Cumple
21.862	92.0	2219.7	1997.7	0.046	Cumple
22.550	100.7	2224.0	2001.6	0.050	Cumple
23.320	110.4	2228.7	2005.9	0.055	Cumple
23.638	114.4	2230.5	2007.4	0.057	Cumple
24.778	128.8	2239.5	2015.6	0.064	Cumple
25.550	138.6	2247.6	2022.8	0.069	Cumple

26.235	147.2	2250.3	2025.2	0.073	Cumple
26.550	151.2	2251.8	2026.7	0.075	Cumple
27.692	165.6	2257.6	2031.8	0.082	Cumple
28.550	176.5	2266.7	2040.0	0.087	Cumple
29.149	184.0	2211.3	1990.2	0.092	Cumple
29.151	5.0	2211.3	1990.2	0.003	Cumple
29.540	0.1	2211.3	1990.2	0.000	Cumple

Viga 2. Tras la transferencia del pretesado

Armadura de cortante

Distancia al eje 1	V_u	V_c	V_s	V_p	V_n	V_r	A_{st}	$A_{st\ min}$	$S_{max\ long}$
(m)	(kN)	(kN)	(kN)	(kN)	(kN)	(kN)	(cm^2/m)	(cm^2/m)	(m)
-0.390	0.1	303.3	0.0	-0.0	303.3	273.0	0.0	0.0	0.610
-0.001	5.0	300.3	0.0	-0.0	300.3	270.3	0.0	0.0	0.610
0.001	132.5	174.4	0.0	-0.0	174.4	157.0	1.8	1.8	0.610
0.600	176.5	663.6	0.0	-0.0	663.6	597.2	1.8	1.8	0.610
1.457	165.6	395.9	0.0	-0.0	395.9	356.3	0.0	0.0	0.610
2.600	151.2	405.2	0.0	-0.0	405.2	364.7	0.0	0.0	0.610
2.915	147.2	405.3	0.0	-0.0	405.3	364.8	0.0	0.0	0.610
3.600	138.6	415.7	0.0	-0.0	415.7	374.1	0.0	0.0	0.610
4.372	128.8	423.7	0.0	-0.0	423.7	381.3	0.0	0.0	0.610
5.512	114.4	438.9	0.0	-0.0	438.9	395.0	0.0	0.0	0.610
5.830	110.4	436.3	0.0	-0.0	436.3	392.7	0.0	0.0	0.610
6.600	100.7	448.9	0.0	-0.0	448.9	404.0	0.0	0.0	0.610
7.287	92.0	456.5	0.0	-0.0	456.5	410.9	0.0	0.0	0.610
7.600	88.1	461.4	0.0	-0.0	461.4	415.3	0.0	0.0	0.610
8.745	73.6	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
10.202	55.2	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
11.660	36.8	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
13.117	18.4	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
14.575	0.0	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
16.032	18.4	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
17.490	36.8	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
18.947	55.2	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
20.405	73.6	465.1	0.0	-0.0	465.1	418.6	0.0	0.0	0.610
21.550	88.1	461.4	0.0	-0.0	461.4	415.3	0.0	0.0	0.610
21.862	92.0	456.5	0.0	-0.0	456.5	410.9	0.0	0.0	0.610
22.550	100.7	448.9	0.0	-0.0	448.9	404.0	0.0	0.0	0.610
23.320	110.4	436.3	0.0	-0.0	436.3	392.7	0.0	0.0	0.610
23.638	114.4	438.9	0.0	-0.0	438.9	395.0	0.0	0.0	0.610
24.778	128.8	423.7	0.0	-0.0	423.7	381.3	0.0	0.0	0.610
25.550	138.6	415.7	0.0	-0.0	415.7	374.1	0.0	0.0	0.610
26.235	147.2	405.3	0.0	-0.0	405.3	364.8	0.0	0.0	0.610
26.550	151.2	405.2	0.0	-0.0	405.2	364.7	0.0	0.0	0.610
27.692	165.6	395.9	0.0	-0.0	395.9	356.3	0.0	0.0	0.610
28.550	176.5	663.6	0.0	-0.0	663.6	597.2	1.8	1.8	0.610
29.149	132.5	174.4	0.0	-0.0	174.4	157.0	1.8	1.8	0.610
29.151	5.0	300.3	0.0	-0.0	300.3	270.3	0.0	0.0	0.610
29.540	0.1	303.3	0.0	-0.0	303.3	273.0	0.0	0.0	0.610

Viga 2. Tras la transferencia del pretesado

Armadura de cortante

Distancia al eje 1	θ	b_0	d_v	$f_{y\ \alpha d}$	β	v	ε
(m)	(º)	(m)	(m)	(MPa)		(kN/m^2)	
-0.390	29.3	0.174	1.273	0.0	2.611	1	0.00010
-0.001	29.4	0.174	1.273	0.0	2.585	25	0.00011
0.001	39.3	0.174	1.273	500.0	1.501	664	0.00293
0.600	28.4	0.174	1.305	500.0	5.573	863	-0.00018
1.457	28.2	0.174	1.300	0.0	3.339	814	-0.00023
2.600	28.1	0.174	1.297	0.0	3.426	745	-0.00025
2.915	28.1	0.174	1.296	0.0	3.429	726	-0.00025
3.600	28.0	0.174	1.294	0.0	3.520	684	-0.00028

4.372	27.9	0.174	1.290	0.0	3.601	638	-0.00030
5.512	27.8	0.174	1.285	0.0	3.746	569	-0.00034
5.830	27.8	0.174	1.284	0.0	3.727	549	-0.00034
6.600	27.7	0.174	1.281	0.0	3.842	502	-0.00036
7.287	27.7	0.174	1.278	0.0	3.915	460	-0.00038
7.600	27.6	0.174	1.278	0.0	3.960	440	-0.00039
8.745	27.6	0.174	1.275	0.0	4.000	369	-0.00040
10.202	27.6	0.174	1.275	0.0	4.000	277	-0.00040
11.660	27.6	0.174	1.275	0.0	4.000	184	-0.00040
13.117	27.6	0.174	1.275	0.0	4.000	92	-0.00040
14.575	27.6	0.174	1.275	0.0	4.000	0	-0.00040
16.032	27.6	0.174	1.275	0.0	4.000	92	-0.00040
17.490	27.6	0.174	1.275	0.0	4.000	184	-0.00040
18.947	27.6	0.174	1.275	0.0	4.000	277	-0.00040
20.405	27.6	0.174	1.275	0.0	4.000	369	-0.00040
21.550	27.6	0.174	1.278	0.0	3.960	440	-0.00039
21.862	27.7	0.174	1.278	0.0	3.915	460	-0.00038
22.550	27.7	0.174	1.281	0.0	3.842	502	-0.00036
23.320	27.8	0.174	1.284	0.0	3.727	549	-0.00034
23.638	27.8	0.174	1.285	0.0	3.746	569	-0.00034
24.778	27.9	0.174	1.290	0.0	3.601	638	-0.00030
25.550	28.0	0.174	1.294	0.0	3.520	684	-0.00028
26.235	28.1	0.174	1.296	0.0	3.429	726	-0.00025
26.550	28.1	0.174	1.297	0.0	3.426	745	-0.00025
27.692	28.2	0.174	1.300	0.0	3.339	814	-0.00023
28.550	28.4	0.174	1.305	500.0	5.573	863	-0.00018
29.149	39.3	0.174	1.273	500.0	1.501	664	0.00293
29.151	29.4	0.174	1.273	0.0	2.585	25	0.00011
29.540	29.3	0.174	1.273	0.0	2.611	1	0.00010

Viga 2. Tras el hormigonado de la losa

Envolvente de esfuerzos.

Distancia al eje 1 (m)	Cortantes V_{u-} (kN)	Cortantes V_{u+} (kN)	Cortantes de pretensado V_{p-} (kN)	V_{p+} (kN)	Axiles y flectores N_{p-} (kN)	N_{p+} (kN)	M_{u-} (kNm)	M_{u+} (kNm)
-0.390	-0.3	-0.2	0.0	0.0	19.4	19.4	-0.1	-0.0
-0.001	-11.4	-8.2	0.0	0.0	773.3	773.3	-2.3	-1.6
0.001	300.3	417.1	0.0	0.0	776.8	776.8	-1.9	-1.4
0.600	288.0	399.9	0.0	0.0	1723.0	1723.0	160.5	222.9
1.457	270.3	375.4	0.0	0.0	2047.9	2047.9	392.3	544.9
2.600	246.7	342.7	0.0	0.0	2365.3	2365.3	701.1	973.8
2.915	240.3	333.7	0.0	0.0	2478.5	2478.5	786.2	1092.0
3.600	226.1	314.1	0.0	0.0	2677.9	2677.9	930.3	1292.0
4.372	210.2	292.0	0.0	0.0	2959.7	2959.7	1092.6	1517.6
5.512	186.7	259.4	0.0	0.0	3309.5	3309.5	1332.2	1850.3
5.830	180.2	250.3	0.0	0.0	3355.9	3355.9	1399.1	1943.1
6.600	164.3	228.2	0.0	0.0	3578.7	3578.7	1514.7	2103.7
7.287	150.2	208.6	0.0	0.0	3820.6	3820.6	1617.9	2247.1
7.600	143.7	199.6	0.0	0.0	3863.6	3863.6	1664.8	2312.3
8.745	120.1	166.8	0.0	0.0	4180.1	4180.1	1836.8	2551.1
10.202	90.1	125.1	0.0	0.0	4183.3	4183.3	1968.1	2733.5
11.660	60.1	83.4	0.0	0.0	4186.4	4186.4	2099.4	2915.8
13.117	30.0	41.7	0.0	0.0	4187.5	4187.5	2143.2	2551.4
14.575	0.0	0.0	0.0	0.0	4188.5	4188.5	2186.9	2186.9
16.032	-41.7	-30.0	0.0	0.0	4187.5	4187.5	2143.2	2551.4
17.490	-83.4	-60.1	0.0	0.0	4186.4	4186.4	2099.4	2915.8
18.947	-125.1	-90.1	0.0	0.0	4183.3	4183.3	1968.1	2733.5
20.405	-166.8	-120.1	0.0	0.0	4180.1	4180.1	1836.8	2551.1
21.550	-199.6	-143.7	0.0	0.0	3863.6	3863.6	1664.8	2312.3
21.862	-208.6	-150.2	0.0	0.0	3820.6	3820.6	1617.9	2247.1
22.550	-228.2	-164.3	0.0	0.0	3578.7	3578.7	1514.7	2103.7
23.320	-250.3	-180.2	0.0	0.0	3355.9	3355.9	1399.1	1943.1
23.638	-259.4	-186.7	0.0	0.0	3309.5	3309.5	1332.2	1850.3
24.778	-292.0	-210.2	0.0	0.0	2959.7	2959.7	1092.6	1517.6

25.550	-314.1	-226.1	0.0	0.0	2677.9	2677.9	930.3	1292.0
26.235	-333.7	-240.3	0.0	0.0	2478.5	2478.5	786.2	1092.0
26.550	-342.7	-246.7	0.0	0.0	2365.3	2365.3	701.1	973.8
27.692	-375.4	-270.3	0.0	0.0	2047.9	2047.9	392.3	544.9
28.550	-399.9	-288.0	0.0	0.0	1723.0	1723.0	160.5	222.9
29.149	-417.1	-300.3	0.0	0.0	776.8	776.8	-1.9	-1.4
29.151	8.2	11.4	0.0	0.0	773.3	773.3	-2.3	-1.6
29.540	0.2	0.3	0.0	0.0	19.4	19.4	-0.1	-0.0

Viga 2. Tras el hormigonado de la losa

Verificación por agotamiento de las bielas de compresión

Distancia al eje 1 (m)	V_u (kN)	V_{nmax} (kN)	V_r (kN)	V_u/V_r	Observaciones
-0.390	0.3	2769.9	2492.9	0.000	Cumple
-0.001	11.4	2769.9	2492.9	0.005	Cumple
0.001	417.1	2769.9	2492.9	0.167	Cumple
0.600	399.9	2839.2	2555.3	0.157	Cumple
1.457	375.4	2827.8	2545.0	0.148	Cumple
2.600	342.7	2820.6	2538.5	0.135	Cumple
2.915	333.7	2818.6	2536.8	0.132	Cumple
3.600	314.1	2815.3	2533.8	0.124	Cumple
4.372	292.0	2805.2	2524.7	0.116	Cumple
5.512	259.4	2793.9	2514.5	0.103	Cumple
5.830	250.3	2791.7	2512.5	0.100	Cumple
6.600	228.2	2785.7	2507.1	0.091	Cumple
7.287	208.6	2780.4	2502.3	0.083	Cumple
7.600	199.6	2778.8	2500.9	0.080	Cumple
8.745	166.8	2772.8	2495.5	0.067	Cumple
10.202	125.1	2772.8	2495.5	0.050	Cumple
11.660	83.4	2772.8	2495.5	0.033	Cumple
13.117	41.7	2772.8	2495.5	0.017	Cumple
14.575	0.0	2772.8	2495.5	0.000	Cumple
16.032	41.7	2772.8	2495.5	0.017	Cumple
17.490	83.4	2772.8	2495.5	0.033	Cumple
18.947	125.1	2772.8	2495.5	0.050	Cumple
20.405	166.8	2772.8	2495.5	0.067	Cumple
21.550	199.6	2778.8	2500.9	0.080	Cumple
21.862	208.6	2780.4	2502.3	0.083	Cumple
22.550	228.2	2785.7	2507.1	0.091	Cumple
23.320	250.3	2791.7	2512.5	0.100	Cumple
23.638	259.4	2793.9	2514.5	0.103	Cumple
24.778	292.0	2805.2	2524.7	0.116	Cumple
25.550	314.1	2815.3	2533.8	0.124	Cumple
26.235	333.7	2818.6	2536.8	0.132	Cumple
26.550	342.7	2820.6	2538.5	0.135	Cumple
27.692	375.4	2827.8	2545.0	0.148	Cumple
28.550	399.9	2839.2	2555.3	0.157	Cumple
29.149	417.1	2769.9	2492.9	0.167	Cumple
29.151	11.4	2769.9	2492.9	0.005	Cumple
29.540	0.3	2769.9	2492.9	0.000	Cumple

Viga 2. Tras el hormigonado de la losa

Armadura de cortante

Distancia al eje 1 (m)	V_u (kN)	V_c (kN)	V_s (kN)	V_p (kN)	V_n (kN)	V_r (kN)	A_{st} (cm^2/m)	$A_{st\ min}$ (cm^2/m)	$S_{max\ long}$ (m)
-0.390	0.3	312.6	0.0	-0.0	312.6	281.3	0.0	0.0	0.610
-0.001	11.4	306.2	0.0	-0.0	306.2	275.6	0.0	0.0	0.610
0.001	417.1	113.5	350.0	-0.0	463.4	417.1	6.6	2.0	0.610
0.600	399.9	708.3	0.0	-0.0	708.3	637.5	2.0	2.0	0.610
1.457	375.4	731.3	0.0	-0.0	731.3	658.1	2.0	2.0	0.610
2.600	342.7	733.3	0.0	-0.0	733.3	660.0	2.0	2.0	0.610
2.915	333.7	729.7	0.0	-0.0	729.7	656.7	2.0	2.0	0.610
3.600	314.1	740.5	0.0	-0.0	740.5	666.5	2.0	2.0	0.610

4.372	292.0	745.3	0.0	-0.0	745.3	670.7	2.0	2.0	0.610
5.512	259.4	757.3	0.0	-0.0	757.3	681.6	2.0	2.0	0.610
5.830	250.3	750.2	0.0	-0.0	750.2	675.2	2.0	2.0	0.610
6.600	228.2	763.8	0.0	-0.0	763.8	687.4	2.0	2.0	0.610
7.287	208.6	770.2	0.0	-0.0	770.2	693.2	2.0	2.0	0.610
7.600	199.6	451.7	0.0	-0.0	451.7	406.5	0.0	0.0	0.610
8.745	166.8	460.4	0.0	-0.0	460.4	414.3	0.0	0.0	0.610
10.202	125.1	455.1	0.0	-0.0	455.1	409.6	0.0	0.0	0.610
11.660	83.4	450.0	0.0	-0.0	450.0	405.0	0.0	0.0	0.610
13.117	41.7	467.0	0.0	-0.0	467.0	420.3	0.0	0.0	0.610
14.575	0.0	485.2	0.0	-0.0	485.2	436.7	0.0	0.0	0.610
16.032	41.7	467.0	0.0	-0.0	467.0	420.3	0.0	0.0	0.610
17.490	83.4	450.0	0.0	-0.0	450.0	405.0	0.0	0.0	0.610
18.947	125.1	455.1	0.0	-0.0	455.1	409.6	0.0	0.0	0.610
20.405	166.8	460.4	0.0	-0.0	460.4	414.3	0.0	0.0	0.610
21.550	199.6	451.7	0.0	-0.0	451.7	406.5	0.0	0.0	0.610
21.862	208.6	770.2	0.0	-0.0	770.2	693.2	2.0	2.0	0.610
22.550	228.2	763.8	0.0	-0.0	763.8	687.4	2.0	2.0	0.610
23.320	250.3	750.2	0.0	-0.0	750.2	675.2	2.0	2.0	0.610
23.638	259.4	757.3	0.0	-0.0	757.3	681.6	2.0	2.0	0.610
24.778	292.0	745.3	0.0	-0.0	745.3	670.7	2.0	2.0	0.610
25.550	314.1	740.5	0.0	-0.0	740.5	666.5	2.0	2.0	0.610
26.235	333.7	729.7	0.0	-0.0	729.7	656.7	2.0	2.0	0.610
26.550	342.7	733.3	0.0	-0.0	733.3	660.0	2.0	2.0	0.610
27.692	375.4	731.3	0.0	-0.0	731.3	658.1	2.0	2.0	0.610
28.550	399.9	708.3	0.0	-0.0	708.3	637.5	2.0	2.0	0.610
29.149	417.1	113.5	350.0	-0.0	463.4	417.1	6.6	2.0	0.610
29.151	11.4	306.2	0.0	-0.0	306.2	275.6	0.0	0.0	0.610
29.540	0.3	312.6	0.0	-0.0	312.6	281.3	0.0	0.0	0.610

Viga 2. Tras el hormigonado de la losa

Armadura de cortante

Distancia al eje 1	θ	b_0	d_v	$f_{y\alpha d}$	β	v	ε
(m)	(º)	(m)	(m)	(MPa)		(kN/m^2)	
-0.390	29.8	0.174	1.273	0.0	2.404	1	0.00022
-0.001	29.9	0.174	1.273	0.0	2.355	57	0.00025
0.001	50.0	0.174	1.273	500.0	0.873	2091	0.00600
0.600	28.5	0.174	1.305	500.0	5.315	1956	-0.00013
1.457	28.4	0.174	1.300	500.0	5.509	1844	-0.00017
2.600	28.4	0.174	1.297	500.0	5.539	1688	-0.00018
2.915	28.4	0.174	1.296	500.0	5.515	1644	-0.00017
3.600	28.3	0.174	1.294	500.0	5.604	1550	-0.00019
4.372	28.3	0.174	1.290	500.0	5.660	1446	-0.00020
5.512	28.2	0.174	1.285	500.0	5.775	1289	-0.00023
5.830	28.2	0.174	1.284	500.0	5.725	1245	-0.00022
6.600	28.2	0.174	1.281	500.0	5.841	1138	-0.00024
7.287	28.1	0.174	1.278	500.0	5.902	1042	-0.00025
7.600	28.1	0.174	1.278	0.0	3.463	998	-0.00026
8.745	28.0	0.174	1.275	0.0	3.537	836	-0.00028
10.202	28.1	0.174	1.275	0.0	3.497	627	-0.00027
11.660	28.1	0.174	1.275	0.0	3.458	418	-0.00025
13.117	28.0	0.174	1.275	0.0	3.588	209	-0.00029
14.575	27.8	0.174	1.275	0.0	3.728	0	-0.00033
16.032	28.0	0.174	1.275	0.0	3.588	209	-0.00029
17.490	28.1	0.174	1.275	0.0	3.458	418	-0.00025
18.947	28.1	0.174	1.275	0.0	3.497	627	-0.00027
20.405	28.0	0.174	1.275	0.0	3.537	836	-0.00028
21.550	28.1	0.174	1.278	0.0	3.463	998	-0.00026
21.862	28.1	0.174	1.278	500.0	5.902	1042	-0.00025
22.550	28.2	0.174	1.281	500.0	5.841	1138	-0.00024
23.320	28.2	0.174	1.284	500.0	5.725	1245	-0.00022
23.638	28.2	0.174	1.285	500.0	5.775	1289	-0.00023
24.778	28.3	0.174	1.290	500.0	5.660	1446	-0.00020
25.550	28.3	0.174	1.294	500.0	5.604	1550	-0.00019