

EDUARDO TORROJA - OFICINA TÉCNICA

SOLUCION C

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CUBICACIONES.

FECHA Abril de 1948

N.º 665.114

CIMENTACION
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EXCAVACION.

3,00x1,20x3,00 = 10,800
Total: 10,800 m3
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RELLENO DE TIERRAS

Excavación - Hormigón: = 6,802
Total: 6,802 m3
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HORMIGON

0,30x3,00x1,20 = 1,080
 $\frac{0,9+3,0}{2} \times 0,7 \times 1,20 = 1,638$
0,80x0,8x2,00 = 1,280
Total: 3,998
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ENCOFRADO

0,8x2,00x4 = 6,40
Total: 6,40 m2
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ACERO EN REDONDOS

7/20x3,10x2,47	=	53,599
15"10x1,30x0,62	=	12,090
4"25x2,60x3,85	=	40,040
5"8x2,20x0,39	=	<u>4,290</u>
Suma:		110,019
5% de tolerancia en peso		<u>5,500</u>
TOTAL:		<u>115,519 kg.</u> =====

ESTRUCTURA

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HORMIGON

Soporte	0,40x0,65x7,40	=	<u>1,924</u>	
				1,924
Membrana	0,06x14,70x19,70	=	17,375	
	0,025x0,05x14,70x11	=	0,202	
	0,065x0,05x14,70x11	=	0,526	
	0,15x0,15x19,70x3	=	1,330	
	0,15x1,275x19,70	=	3,767	
	0,15x0,15x1,67x22x3	=	2,480	
	0,30x0,25x1,00x4	=	<u>0,300</u>	
				25,980
Arco	0,15x0,30x20,00	=	0,900	
	0,35x0,60x9,50	=	1,995	
	0,35x0,71x4,05	=	1,006	
	0,35x0,80x4,10	=	1,148	
	0,35x $\frac{0,50x0,80}{2}$ x2	=	0,140	
	0,35x $\frac{0,80+0,38}{2}$ x1,20x2	=	<u>0,496</u>	
		Total:		<u>5,685</u>
				<u>33,589 m3</u>
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ENCOFRADO RECTO

Soporte	(0,40+0,65)x7,4x2	=	<u>15,54</u>	
				15,54

Membrana	$(0,50+0,475 \times 2) \times 19,70$	=	28,56
	$(0,15 \times 4 + 0,09) \times 19,70$	=	13,59
	$0,15 \times 1,63 \times 11 \times 6$	=	16,14
	$0,15 \times 1,67 \times 3 \times 22$	=	16,53
	$0,15 \times 1,67 \times 3 \times 2 \times 44$	=	66,13
Arco:	$0,49 \times 9,50 \times 2$	=	9,31
	$0,60 \times 4,05 \times 2$	=	4,86
	$0,69 \times 4,10 \times 2$	=	5,65
	$0,28 \times 0,55 \times 2$	=	0,31
	$0,24 \times 1,20 \times 2$	=	0,58
	$0,30 \times 0,70 \times 2$	=	<u>0,42</u>

TOTAL: 162,09 m2
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ENCOFRADO CURVO

Membrana	$3,50 \times 19,70$	=	68,95
	$14,70 \times 19,50$	=	286,65
	$0,06 \times 14,70 \times 11$	=	<u>9,70</u>
Arco	$(0,50+0,2) \times 20,00$	=	14,00
	$0,30 \times 1,90 \times 2$	=	<u>1,14</u>

365,30

15,14
TOTAL: 380,44 m2
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ACERO EN REDONDOS

Soporte: 4ø25x7,50x3,85 = 115,500

30ø8x2,20x0,39 = 25,740

141,240

Membrana	14ø8x15,25x19,70x0,39	=	1.640,321
	1ø15x19,50x1,39	=	27,105
	1ø15x17,50x1,39	=	24,325
	1ø15x15,80x1,39	=	21,962
	1ø15x14,20x1,39	=	19,738
	1ø15x12,70x1,39	=	17,653
	1ø15x11,30x1,39	=	15,707
	1ø15x9,90x1,39	=	13,761
	1ø15x8,70x1,39	=	12,093
	1ø15x7,50x1,39	=	10,425
	1ø15x6,50x1,39	=	9,035
	1ø15x5,60x1,39	=	7,784
	1ø15x4,90x1,39	=	6,811
	1ø15x4,05x1,39	=	5,630
	1ø15x3,10x1,39	=	4,309
	1ø15x2,30x1,39	=	3,197
	1ø15x1,60x1,39	=	2,224
	2ø16x15,00x11x1,58	=	521,400
	1ø38x20,20x8,90	=	179,780
	1ø38x17,20x8,90	=	153,080
	1ø38x13,20x8,90	=	117,480
	1ø38x20,00x8,90	=	178,000
	1ø38x12,40x8,90	=	110,360

1Ø38x5,00x8,90	=	44,500
4"16x5,40x2x1,58	=	68,256
4"14x7,55x6x1,21	=	219,252
4"12x7,55x2x0,89	=	53,756
4"12x6,70x2x0,89	=	47,704
4"15x6,50x10x1,39	=	361,400
4"15x2,70x2x1,39	=	30,024
4"10x20,40x4x0,62	=	202,368
11"6x0,65x66x0,22	=	103,818
11"6x0,65x44x0,22	=	<u>69,212</u>

4.302,470

Arco	4"22x11,14x2,98	=	132,789
	4"22x12,15x2,98	=	144,828
	86"6x2,50x0,22	=	47,300
	14"6x2,00x0,22	=	<u>6,160</u>

331,077

Suma: 4.774,787

5% de tolerancia en peso 238,739

Total: 5.013,526 kg

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TENSORES DE ROSCA PARA REDONDOS DE 38 mm

Total: 6 Unidades

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SUSIERTA DE FIBROCEMENTO

14,70x19,70 = 289,59
Total: 289,59 m2
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AISLANTE TERMICO (Una capa)

14,70x19,15 = 281,51
Total: 281,51 m2
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AISLANTE TERMICO (Dos capas)

14,70x19,15x2 = 563,01
Total: 563,01 m2
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PANTALLAS ANTISOLARES

1,25x19,70 = 24,63
Total: 24,63 m2
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CANALON

Total: 19,70 m.l.
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