1.- ESTRUCTURA

1.1.- Geometría

1.1.1.- Barras

1.1.1.1.- Materiales utilizados

Materiales utilizados							
Material		E (MPa)	ν	G (MPa)	f_y (MPa)	α_t (m/m°C)	γ (kN/m³)
Tipo	Designación						
Acero laminado	S275	210000.00	0.300	81000.00	275.00	0.000012	77.01

Notación:
E: Módulo de elasticidad
ν: Módulo de Poisson
G: Módulo de cortadura
f_y: Límite elástico
α_t: Coeficiente de dilatación
γ: Peso específico

1.1.1.2.- Descripción

Descripción											
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)			β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación				Indeformable origen	Deformable	Indeformable extremo				
Acero laminado	S275	N1/N2	N1/N2	IPE 360 (IPE)	-	7.271	0.729	0.00	0.00	-	-
		N3/N4	N3/N4	IPE 360 (IPE)	-	7.271	0.729	0.00	0.00	-	-
		N2/N60	N2/N5	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N60/N5	N2/N5	IPE 360 (IPE)	-	5.030	0.069	0.00	2.27	1.400	4.200
		N4/N57	N4/N5	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N57/N5	N4/N5	IPE 360 (IPE)	-	5.030	0.069	0.00	2.27	1.400	4.200
		N6/N75	N6/N7	IPE 360 (IPE)	-	6.000	-	0.00	1.60	-	-
		N75/N7	N6/N7	IPE 360 (IPE)	-	1.271	0.729	0.00	4.80	-	-
		N8/N9	N8/N9	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N7/N69	N7/N10	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N69/N10	N7/N10	IPE 360 (IPE)	-	5.099	-	0.00	2.27	1.400	4.200
		N9/N70	N9/N10	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	-	4.200
		N70/N10	N9/N10	IPE 360 (IPE)	-	5.099	-	0.00	2.27	-	4.200
		N11/N76	N11/N12	IPE 360 (IPE)	-	6.000	-	0.00	1.60	-	-
		N76/N12	N11/N12	IPE 360 (IPE)	-	1.271	0.729	0.00	4.80	-	-
		N13/N14	N13/N14	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N12/N15	N12/N15	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N14/N15	N14/N15	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N16/N17	N16/N17	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-

Producido por una versión educativa de CYPE

Descripción											
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)			β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación				Indeformable origen	Deformable	Indeformable extremo				
		N18/N19	N18/N19	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N17/N20	N17/N20	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N19/N20	N19/N20	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N21/N22	N21/N22	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N23/N24	N23/N24	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N22/N25	N22/N25	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N24/N25	N24/N25	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N26/N27	N26/N27	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N28/N29	N28/N29	IPE 360 (IPE)	-	7.271	0.729	0.00	1.20	-	-
		N27/N30	N27/N30	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N29/N30	N29/N30	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N31/N73	N31/N32	IPE 360 (IPE)	-	6.000	-	0.00	1.60	-	-
		N73/N32	N31/N32	IPE 360 (IPE)	-	1.271	0.729	0.00	4.80	-	-
		N33/N77	N33/N34	IPE 360 (IPE)	-	6.000	-	0.00	1.60	-	-
		N77/N34	N33/N34	IPE 360 (IPE)	-	1.271	0.729	0.00	4.80	-	-
		N32/N35	N32/N35	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N34/N35	N34/N35	IPE 360 (IPE)	0.184	10.014	-	0.00	1.14	1.400	4.200
		N36/N61	N36/N37	IPE 360 (IPE)	-	3.900	0.100	0.00	2.40	-	-
		N61/N74	N36/N37	IPE 360 (IPE)	0.100	1.900	-	0.00	4.80	-	-
		N74/N37	N36/N37	IPE 360 (IPE)	-	1.271	0.729	0.00	4.80	-	-
		N38/N62	N38/N39	IPE 360 (IPE)	-	3.900	0.100	0.00	2.40	-	-
		N62/N78	N38/N39	IPE 360 (IPE)	0.100	1.900	-	0.00	4.80	-	-
		N78/N39	N38/N39	IPE 360 (IPE)	-	1.271	0.729	1.00	4.80	-	-
		N37/N71	N37/N40	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N71/N40	N37/N40	IPE 360 (IPE)	-	5.099	-	0.00	2.27	1.400	4.200
		N39/N72	N39/N40	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N72/N40	N39/N40	IPE 360 (IPE)	-	5.099	-	0.00	2.27	1.400	4.200
		N41/N51	N41/N42	IPE 360 (IPE)	-	3.900	0.100	0.00	0.00	-	-
		N51/N42	N41/N42	IPE 360 (IPE)	0.100	3.171	0.729	0.00	0.00	-	-
		N43/N52	N43/N44	IPE 360 (IPE)	-	3.900	0.100	0.00	0.00	-	-
		N52/N44	N43/N44	IPE 360 (IPE)	0.100	3.171	0.729	0.00	0.00	-	-
		N42/N50	N42/N45	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200

Producido por una versión educativa de CYPE

Descripción											
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)			β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación				Indeformable origen	Deformable	Indeformable extremo				
		N50/N45	N42/N45	IPE 360 (IPE)	-	5.030	0.069	0.00	2.27	1.400	4.200
		N44/N47	N44/N45	IPE 360 (IPE)	0.184	4.915	-	0.00	2.27	1.400	4.200
		N47/N45	N44/N45	IPE 360 (IPE)	-	5.030	0.069	0.00	2.27	1.400	4.200
		N46/N53	N46/N47	IPE 270 (IPE)	-	3.900	0.100	0.00	1.58	-	-
		N53/N47	N46/N47	IPE 270 (IPE)	0.100	4.716	0.184	0.00	1.26	-	-
		N48/N54	N48/N45	IPE 270 (IPE)	-	3.900	0.100	0.00	1.75	-	-
		N54/N45	N48/N45	IPE 270 (IPE)	0.100	5.702	0.198	0.00	1.17	-	-
		N49/N55	N49/N50	IPE 270 (IPE)	-	3.900	0.100	0.00	1.58	-	-
		N55/N50	N49/N50	IPE 270 (IPE)	0.100	4.716	0.184	0.00	1.26	-	-
		N54/N53	N54/N53	IPE 200 (IPE)	0.068	4.864	0.068	0.00	1.00	-	-
		N55/N54	N55/N54	IPE 200 (IPE)	0.068	4.864	0.068	0.00	1.00	-	-
		N51/N55	N51/N55	IPE 200 (IPE)	0.180	4.752	0.068	0.00	1.00	-	-
		N53/N52	N53/N52	IPE 200 (IPE)	0.068	4.752	0.180	0.00	1.00	-	-
		N56/N57	N56/N57	IPE 270 (IPE)	-	8.816	0.184	0.00	0.70	-	-
		N58/N5	N58/N5	IPE 270 (IPE)	-	9.802	0.198	0.00	0.70	-	-
		N59/N60	N59/N60	IPE 270 (IPE)	-	8.816	0.184	0.00	0.70	-	-
		N63/N64	N63/N64	IPE 200 (IPE)	-	3.900	0.100	0.70	0.70	-	-
		N65/N66	N65/N66	IPE 200 (IPE)	-	3.900	0.100	0.70	0.70	-	-
		N67/N68	N67/N68	IPE 200 (IPE)	-	3.900	0.100	0.70	0.70	-	-
		N66/N64	N66/N64	IPE 200 (IPE)	0.100	4.800	0.100	0.00	1.00	-	-
		N68/N66	N68/N66	IPE 200 (IPE)	0.100	4.800	0.100	0.00	1.00	-	-
		N61/N68	N61/N68	IPE 200 (IPE)	0.180	4.720	0.100	0.00	1.00	-	-
		N64/N62	N64/N62	IPE 200 (IPE)	0.100	4.720	0.180	0.00	1.00	-	-
		N61/N51	N61/N51	IPE 100 (IPE)	-	5.000	-	0.00	1.00	-	-
		N68/N55	N68/N55	IPE 100 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N66/N54	N66/N54	IPE 100 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N64/N53	N64/N53	IPE 100 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N62/N52	N62/N52	IPE 100 (IPE)	-	5.000	-	0.00	1.00	-	-
		N7/N12	N7/N12	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N12/N17	N12/N17	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N17/N22	N17/N22	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N22/N27	N22/N27	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N27/N32	N27/N32	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N32/N37	N32/N37	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N37/N42	N37/N42	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-

Producido por una versión educativa de CYPE

Descripción											
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)			β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación				Indeformable origen	Deformable	Indeformable extremo				
		N2/N7	N2/N7	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N10/N15	N10/N15	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N15/N20	N15/N20	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N20/N25	N20/N25	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N25/N30	N25/N30	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N30/N35	N30/N35	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N35/N40	N35/N40	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N40/N45	N40/N45	IPE 80 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N5/N10	N5/N10	IPE 80 (IPE)	0.135	4.865	-	0.00	1.00	-	-
		N9/N14	N9/N14	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N14/N19	N14/N19	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N19/N24	N19/N24	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N24/N29	N24/N29	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N29/N34	N29/N34	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N34/N39	N34/N39	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N39/N44	N39/N44	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N4/N9	N4/N9	IPE 80 (IPE)	-	5.000	-	0.00	1.00	-	-
		N60/N69	N60/N69	IPE 80 (IPE)	0.135	4.865	-	0.00	1.00	-	-
		N57/N70	N57/N70	IPE 80 (IPE)	0.135	4.865	-	0.00	1.00	-	-
		N71/N50	N71/N50	IPE 80 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N72/N47	N72/N47	IPE 80 (IPE)	-	4.865	0.135	0.00	1.00	-	-
		N73/N74	N73/N74	IPE 270 (IPE)	-	5.000	-	1.00	1.00	5.000	-
		N75/N76	N75/N76	IPE 270 (IPE)	-	5.000	-	1.00	1.00	5.000	-
		N77/N78	N77/N78	IPE 270 (IPE)	-	5.000	-	1.00	1.00	5.000	-
		N1/N7	N1/N7	R 14 (R)	-	9.434	-	0.00	0.00	-	-
		N6/N2	N6/N2	R 14 (R)	-	9.434	-	0.00	0.00	-	-
		N2/N69	N2/N69	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N7/N60	N7/N60	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N60/N10	N60/N10	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N69/N5	N69/N5	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N70/N5	N70/N5	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N57/N10	N57/N10	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N9/N57	N9/N57	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N4/N70	N4/N70	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N8/N4	N8/N4	R 14 (R)	-	9.434	-	0.00	0.00	-	-
		N3/N9	N3/N9	R 14 (R)	-	9.434	-	0.00	0.00	-	-
		N36/N51	N36/N51	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N41/N61	N41/N61	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N61/N42	N61/N42	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N51/N37	N51/N37	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N37/N50	N37/N50	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N42/N71	N42/N71	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N71/N45	N71/N45	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N50/N40	N50/N40	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N47/N40	N47/N40	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N72/N45	N72/N45	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N44/N72	N44/N72	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N39/N47	N39/N47	R 14 (R)	-	7.141	-	0.00	0.00	-	-
		N38/N52	N38/N52	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N43/N62	N43/N62	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N62/N44	N62/N44	R 14 (R)	-	6.403	-	0.00	0.00	-	-
		N52/N39	N52/N39	R 14 (R)	-	6.403	-	0.00	0.00	-	-

Producido por una versión educativa de CYPE

Descripción											
Material		Barra (Ni/Nf)	Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)			β_{xy}	β_{xz}	$Lb_{Sup.}$ (m)	$Lb_{Inf.}$ (m)
Tipo	Designación				Indeformable origen	Deformable	Indeformable extremo				

Notación:
Ni: Nudo inicial
Nf: Nudo final
β_{xy}: Coeficiente de pandeo en el plano 'XY'
β_{xz}: Coeficiente de pandeo en el plano 'XZ'
$Lb_{Sup.}$: Separación entre arriostramientos del ala superior
$Lb_{Inf.}$: Separación entre arriostramientos del ala inferior

1.1.1.3.- Características mecánicas

Tipos de pieza	
Ref.	Piezas
1	N1/N2, N3/N4, N6/N7, N8/N9, N11/N12, N13/N14, N16/N17, N18/N19, N21/N22, N23/N24, N26/N27, N28/N29, N31/N32, N33/N34, N36/N37, N38/N39, N41/N42 y N43/N44
2	N2/N5, N4/N5, N7/N10, N9/N10, N12/N15, N14/N15, N17/N20, N19/N20, N22/N25, N24/N25, N27/N30, N29/N30, N32/N35, N34/N35, N37/N40, N39/N40, N42/N45 y N44/N45
3	N46/N47, N48/N45, N49/N50, N56/N57, N58/N5, N59/N60, N73/N74, N75/N76 y N77/N78
4	N54/N53, N55/N54, N51/N55, N53/N52, N63/N64, N65/N66, N67/N68, N66/N64, N68/N66, N61/N68 y N64/N62
5	N61/N51, N68/N55, N66/N54, N64/N53 y N62/N52
6	N7/N12, N12/N17, N17/N22, N22/N27, N27/N32, N32/N37, N37/N42, N2/N7, N10/N15, N15/N20, N20/N25, N25/N30, N30/N35, N35/N40, N40/N45, N5/N10, N9/N14, N14/N19, N19/N24, N24/N29, N29/N34, N34/N39, N39/N44, N4/N9, N60/N69, N57/N70, N71/N50 y N72/N47
7	N1/N7, N6/N2, N2/N69, N7/N60, N60/N10, N69/N5, N70/N5, N57/N10, N9/N57, N4/N70, N8/N4, N3/N9, N36/N51, N41/N61, N61/N42, N51/N37, N37/N50, N42/N71, N71/N45, N50/N40, N47/N40, N72/N45, N44/N72, N39/N47, N38/N52, N43/N62, N62/N44 y N52/N39

Características mecánicas									
Material		Ref.	Descripción	A (cm²)	Avy (cm²)	Avz (cm²)	Iyy (cm4)	Izz (cm4)	It (cm4)
Tipo	Designación								
Acero laminado	S275	1	IPE 360, (IPE)	72.70	32.38	24.09	16270.00	1043.00	37.30
		2	IPE 360, Simple con cartelas, (IPE) Cartela inicial inferior: 0.50 m.	72.70	32.38	24.09	16270.00	1043.00	37.30
		3	IPE 270, (IPE)	45.90	20.66	14.83	5790.00	420.00	15.90
		4	IPE 200, (IPE)	28.50	12.75	9.22	1943.00	142.00	6.98
		5	IPE 100, (IPE)	10.30	4.70	3.27	171.00	15.90	1.20
		6	IPE 80, (IPE)	7.64	3.59	2.38	80.10	8.49	0.70
		7	R 14, (R)	1.54	1.39	1.39	0.19	0.19	0.38

Notación:
Ref.: Referencia
A: Área de la sección transversal
Avy: Área de cortante de la sección según el eje local 'Y'
Avz: Área de cortante de la sección según el eje local 'Z'
Iyy: Inercia de la sección alrededor del eje local 'Y'
Izz: Inercia de la sección alrededor del eje local 'Z'
It: Inercia a torsión
Las características mecánicas de las piezas corresponden a la sección en el punto medio de las mismas.

1.1.1.4.- Tabla de medición

Producido por una versión educativa de CYPE

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Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m³)	Peso (kg)
Tipo	Designación					
Acero laminado	S275	N1/N2	IPE 360 (IPE)	8.000	0.058	456.56
		N3/N4	IPE 360 (IPE)	8.000	0.058	456.56
		N2/N5	IPE 360 (IPE)	10.198	0.099	595.71
		N4/N5	IPE 360 (IPE)	10.198	0.099	595.71
		N6/N7	IPE 360 (IPE)	8.000	0.058	456.56
		N8/N9	IPE 360 (IPE)	8.000	0.058	456.56
		N7/N10	IPE 360 (IPE)	10.198	0.099	595.71
		N9/N10	IPE 360 (IPE)	10.198	0.099	595.71
		N11/N12	IPE 360 (IPE)	8.000	0.058	456.56
		N13/N14	IPE 360 (IPE)	8.000	0.058	456.56
		N12/N15	IPE 360 (IPE)	10.198	0.099	595.71
		N14/N15	IPE 360 (IPE)	10.198	0.099	595.71
		N16/N17	IPE 360 (IPE)	8.000	0.058	456.56
		N18/N19	IPE 360 (IPE)	8.000	0.058	456.56
		N17/N20	IPE 360 (IPE)	10.198	0.099	595.71
		N19/N20	IPE 360 (IPE)	10.198	0.099	595.71
		N21/N22	IPE 360 (IPE)	8.000	0.058	456.56
		N23/N24	IPE 360 (IPE)	8.000	0.058	456.56
		N22/N25	IPE 360 (IPE)	10.198	0.099	595.71
		N24/N25	IPE 360 (IPE)	10.198	0.099	595.71
		N26/N27	IPE 360 (IPE)	8.000	0.058	456.56
		N28/N29	IPE 360 (IPE)	8.000	0.058	456.56
		N27/N30	IPE 360 (IPE)	10.198	0.099	595.71
		N29/N30	IPE 360 (IPE)	10.198	0.099	595.71
		N31/N32	IPE 360 (IPE)	8.000	0.058	456.56
		N33/N34	IPE 360 (IPE)	8.000	0.058	456.56
		N32/N35	IPE 360 (IPE)	10.198	0.099	595.71
		N34/N35	IPE 360 (IPE)	10.198	0.099	595.71
		N36/N37	IPE 360 (IPE)	8.000	0.058	456.56
		N38/N39	IPE 360 (IPE)	8.000	0.058	456.56
		N37/N40	IPE 360 (IPE)	10.198	0.099	595.71
		N39/N40	IPE 360 (IPE)	10.198	0.099	595.71
		N41/N42	IPE 360 (IPE)	8.000	0.058	456.56
		N43/N44	IPE 360 (IPE)	8.000	0.058	456.56
		N42/N45	IPE 360 (IPE)	10.198	0.099	595.71
		N44/N45	IPE 360 (IPE)	10.198	0.099	595.71
		N46/N47	IPE 270 (IPE)	9.000	0.041	324.28
		N48/N45	IPE 270 (IPE)	10.000	0.046	360.32
		N49/N50	IPE 270 (IPE)	9.000	0.041	324.28
		N54/N53	IPE 200 (IPE)	5.000	0.014	111.86
		N55/N54	IPE 200 (IPE)	5.000	0.014	111.86
		N51/N55	IPE 200 (IPE)	5.000	0.014	111.86
		N53/N52	IPE 200 (IPE)	5.000	0.014	111.86
		N56/N57	IPE 270 (IPE)	9.000	0.041	324.28
		N58/N5	IPE 270 (IPE)	10.000	0.046	360.32

Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m³)	Peso (kg)
Tipo	Designación					
		N59/N60	IPE 270 (IPE)	9.000	0.041	324.28
		N63/N64	IPE 200 (IPE)	4.000	0.011	89.49
		N65/N66	IPE 200 (IPE)	4.000	0.011	89.49
		N67/N68	IPE 200 (IPE)	4.000	0.011	89.49
		N66/N64	IPE 200 (IPE)	5.000	0.014	111.86
		N68/N66	IPE 200 (IPE)	5.000	0.014	111.86
		N61/N68	IPE 200 (IPE)	5.000	0.014	111.86
		N64/N62	IPE 200 (IPE)	5.000	0.014	111.86
		N61/N51	IPE 100 (IPE)	5.000	0.005	40.43
		N68/N55	IPE 100 (IPE)	5.000	0.005	40.43
		N66/N54	IPE 100 (IPE)	5.000	0.005	40.43
		N64/N53	IPE 100 (IPE)	5.000	0.005	40.43
		N62/N52	IPE 100 (IPE)	5.000	0.005	40.43
		N7/N12	IPE 80 (IPE)	5.000	0.004	29.99
		N12/N17	IPE 80 (IPE)	5.000	0.004	29.99
		N17/N22	IPE 80 (IPE)	5.000	0.004	29.99
		N22/N27	IPE 80 (IPE)	5.000	0.004	29.99
		N27/N32	IPE 80 (IPE)	5.000	0.004	29.99
		N32/N37	IPE 80 (IPE)	5.000	0.004	29.99
		N37/N42	IPE 80 (IPE)	5.000	0.004	29.99
		N2/N7	IPE 80 (IPE)	5.000	0.004	29.99
		N10/N15	IPE 80 (IPE)	5.000	0.004	29.99
		N15/N20	IPE 80 (IPE)	5.000	0.004	29.99
		N20/N25	IPE 80 (IPE)	5.000	0.004	29.99
		N25/N30	IPE 80 (IPE)	5.000	0.004	29.99
		N30/N35	IPE 80 (IPE)	5.000	0.004	29.99
		N35/N40	IPE 80 (IPE)	5.000	0.004	29.99
		N40/N45	IPE 80 (IPE)	5.000	0.004	29.99
		N5/N10	IPE 80 (IPE)	5.000	0.004	29.99
		N9/N14	IPE 80 (IPE)	5.000	0.004	29.99
		N14/N19	IPE 80 (IPE)	5.000	0.004	29.99
		N19/N24	IPE 80 (IPE)	5.000	0.004	29.99
		N24/N29	IPE 80 (IPE)	5.000	0.004	29.99
		N29/N34	IPE 80 (IPE)	5.000	0.004	29.99
		N34/N39	IPE 80 (IPE)	5.000	0.004	29.99
		N39/N44	IPE 80 (IPE)	5.000	0.004	29.99
		N4/N9	IPE 80 (IPE)	5.000	0.004	29.99
		N60/N69	IPE 80 (IPE)	5.000	0.004	29.99
		N57/N70	IPE 80 (IPE)	5.000	0.004	29.99
		N71/N50	IPE 80 (IPE)	5.000	0.004	29.99
		N72/N47	IPE 80 (IPE)	5.000	0.004	29.99
		N73/N74	IPE 270 (IPE)	5.000	0.023	180.16
		N75/N76	IPE 270 (IPE)	5.000	0.023	180.16
		N77/N78	IPE 270 (IPE)	5.000	0.023	180.16
		N1/N7	R 14 (R)	9.434	0.001	11.40
		N6/N2	R 14 (R)	9.434	0.001	11.40

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Tabla de medición						
Material		Pieza (Ni/Nf)	Perfil(Serie)	Longitud (m)	Volumen (m³)	Peso (kg)
Tipo	Designación					
		N2/N69	R 14 (R)	7.141	0.001	8.63
		N7/N60	R 14 (R)	7.141	0.001	8.63
		N60/N10	R 14 (R)	7.141	0.001	8.63
		N69/N5	R 14 (R)	7.141	0.001	8.63
		N70/N5	R 14 (R)	7.141	0.001	8.63
		N57/N10	R 14 (R)	7.141	0.001	8.63
		N9/N57	R 14 (R)	7.141	0.001	8.63
		N4/N70	R 14 (R)	7.141	0.001	8.63
		N8/N4	R 14 (R)	9.434	0.001	11.40
		N3/N9	R 14 (R)	9.434	0.001	11.40
		N36/N51	R 14 (R)	6.403	0.001	7.74
		N41/N61	R 14 (R)	6.403	0.001	7.74
		N61/N42	R 14 (R)	6.403	0.001	7.74
		N51/N37	R 14 (R)	6.403	0.001	7.74
		N37/N50	R 14 (R)	7.141	0.001	8.63
		N42/N71	R 14 (R)	7.141	0.001	8.63
		N71/N45	R 14 (R)	7.141	0.001	8.63
		N50/N40	R 14 (R)	7.141	0.001	8.63
		N47/N40	R 14 (R)	7.141	0.001	8.63
		N72/N45	R 14 (R)	7.141	0.001	8.63
		N44/N72	R 14 (R)	7.141	0.001	8.63
		N39/N47	R 14 (R)	7.141	0.001	8.63
		N38/N52	R 14 (R)	6.403	0.001	7.74
		N43/N62	R 14 (R)	6.403	0.001	7.74
		N62/N44	R 14 (R)	6.403	0.001	7.74
		N52/N39	R 14 (R)	6.403	0.001	7.74

Notación:
Ni: Nudo inicial
Nf: Nudo final

1.1.1.5.- Resumen de medición

Resumen de medición												
Material		Serie	Perfil	Longitud			Volumen			Peso		
Tipo	Designación			Perfil (m)	Serie (m)	Material (m)	Perfil (m³)	Serie (m³)	Material (m³)	Perfil (kg)	Serie (kg)	Material (kg)
			IPE 360	144.000			1.047			8218.01		
			IPE 360, Simple con cartelas	183.565			1.778			10722.80		
			IPE 270	71.000			0.326			2558.24		
			IPE 200	52.000			0.148			1163.37		
			IPE 100	25.000			0.026			202.14		
			IPE 80	140.000			0.107			839.64		
		IPE			615.565			3.432			23704.19	
			R 14	203.224			0.031			245.58		
		R			203.224			0.031			245.58	
Acero laminado	S275					818.788			3.463			23949.77

1.1.1.6.- Medición de superficies

Acero laminado: Medición de las superficies a pintar				
Serie	Perfil	Superficie unitaria (m²/m)	Longitud (m)	Superficie (m²)
IPE	IPE 360	1.384	144.000	199.296
	IPE 360, Simple con cartelas	1.418	183.565	260.282
	IPE 270	1.067	71.000	75.743
	IPE 200	0.789	52.000	41.018
	IPE 100	0.412	25.000	10.295
	IPE 80	0.336	140.000	47.096
R	R 14	0.044	203.224	8.938
			Total	**642.667**

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