ESTRUCTURA E3. PILAS

DETERMINACIÓN DE LA LONGITUD NECESARIA DE LOS PILOTES

Datos de partida

Diámetro de los pilotes	1.25	m		
Tope estructural	4000.00	kPa		
Coeficiente de carga representativa, para combinación característica	1.10			
Coeficiente de carga representativa, para combinación accidental	1.25			
Axil máximo admisible en combinación característica	5399.00	Kn	<	5399.61
Axil máximo admisible en combinación accidental (sismo)	6135.00	Kn	<	6135.92
Canto de encepado	2.00	m		
Profundidad máxima de socavación	6.63	m		
Profundidad nivel superior estrato competente	4.00	m		
Resistencia por fuste estrato competente	90.00	kPa		
Resistencia por punta estrato competente	6500.00	kPa		
Coeficiente global de seguridad hundimiento, característica	2.60			
Coeficiente global de seguridad hundimiento, accidental (*)	2.20			

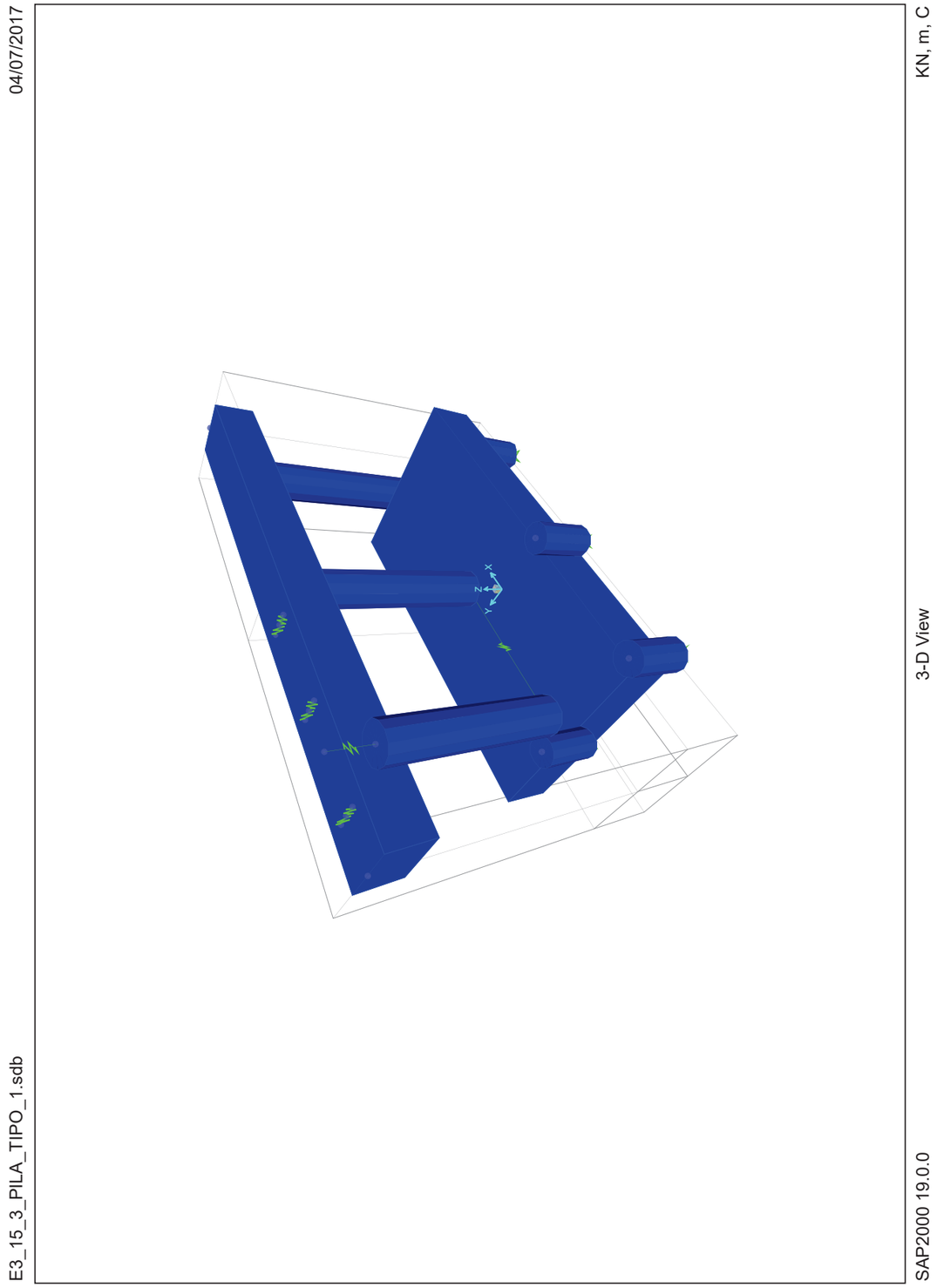
(*) Se aplica para situación sísmica y socavación (ambas con T=500 años)

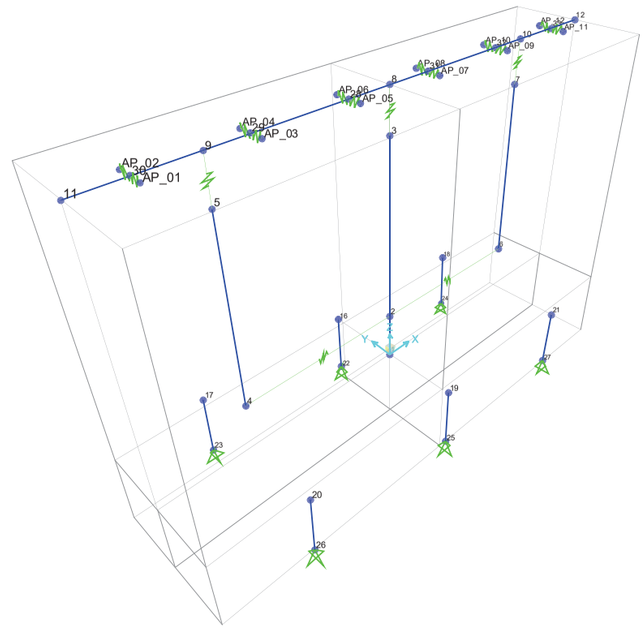
LONGITUD NECESARIA DEL PILOTE EN TERRENO COMPETENTE, POR HUNDIMIENTO

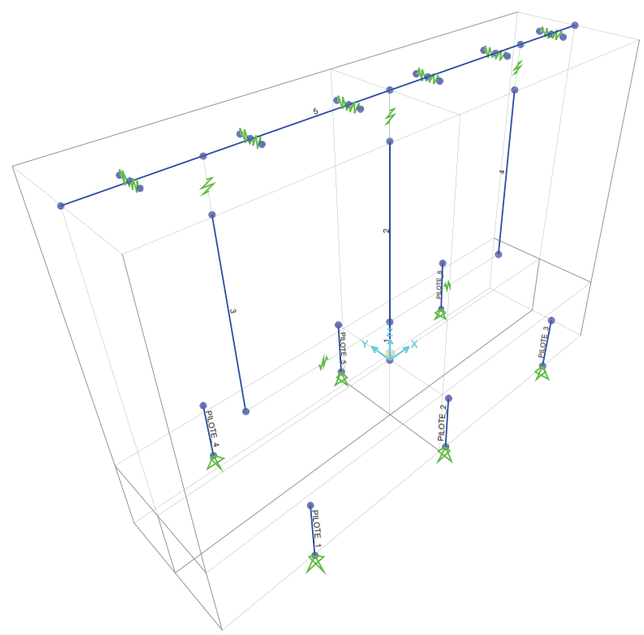
Para combinación característica	17.15	metros
Para combinación accidental	15.62	metros

RESUMEN Y CARGAS ADMISIBLES EN PILOTES

Longitud necesaria de pilote (desde C.I encepado)	19.15	metros
Axil máximo admisible en combinación característica	5399.00	kN
Axil máximo admisible en combinación accidental (sismo)	6135.00	kN
Axil máximo admisible en combinación accidental (socavación)	5958.13	kN
Tracción máxima admisible en combinación sísmica	2468.87	kN




AP_01
AP_02
AP_03
AP_04
AP_05
AP_06
AP_07
AP_08
AP_09
AP_10
AP_11
AP_12


PILOTE 1
PILOTE 2
PILOTE 3
PILOTE 4
PILOTE 5

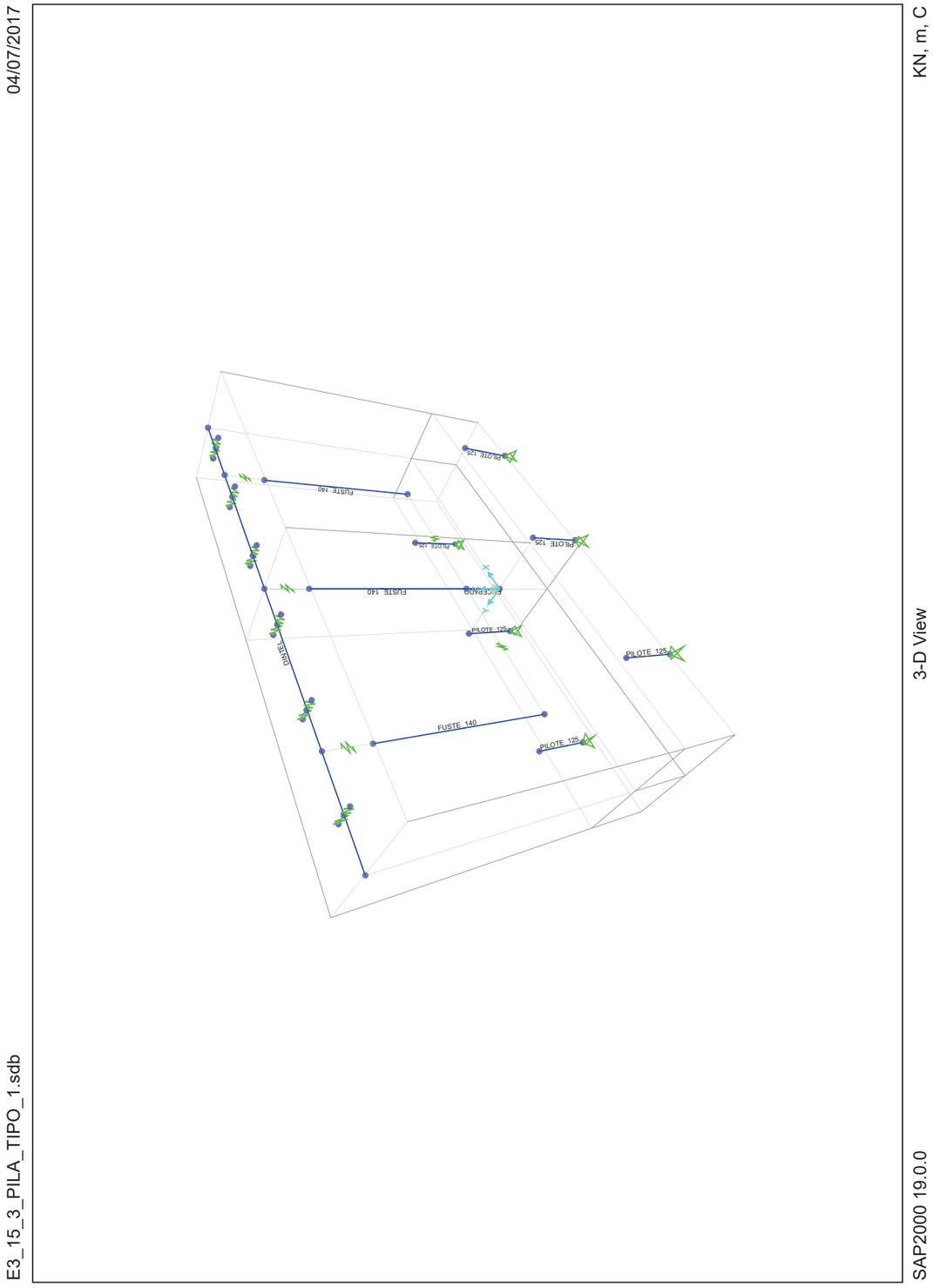


Table: Case - Modal 1 - General

Table: Case - Modal 1 - General

Case	ModeType	MaxNumModes	MinNumModes	EigenShift	EigenCutoff	EigenTol	AutoShift
				Cyc/sec	Cyc/sec		
MODAL	Eigen	12	1	0.0000E+00	0.0000E+00	1.0000E-09	Yes

Table: Case - Static 1 - Load Assignments

Table: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
DEAD	Load pattern	DEAD	1.
PP_TABLERO	Load pattern	PP_TABLERO	1.
CPERM_TABLERO	Load pattern	CPERM_TABLERO	1.
SC_DIST	Load pattern	SC_DIST	1.
CARROS	Load pattern	CARROS	1.
RETYFLU	Load pattern	RETYFLU	1.
FRENADO	Load pattern	FRENADO	1.
SISMO_X	Load pattern	SISMO_X	1.
VIENTO	Load pattern	VIENTO	1.
SISMO_Y	Load pattern	SISMO_Y	1.
TEMP_UNIF	Load pattern	TEMP_UNIF	1.

Table: Connectivity - Frame, Part 1 of 2

Table: Connectivity - Frame, Part 1 of 2

Frame	JointI	JointJ	IsCurved	Length	CentroidX	CentroidY	CentroidZ
				m	m	m	m
1	1	2	No	1.75	0.	0.	0.875
2	2	3	No	6.61	0.	0.	5.055
3	4	5	No	6.61	-5.97	0.	5.055
4	6	7	No	6.61	5.97	0.	5.055
5	11	12	No	18.42	0.	0.	9.86
PILOTE_1	20	26	No	2.4	-5.97	-2.75	-1.2
PILOTE_2	19	25	No	2.4	0.	-2.75	-1.2
PILOTE_3	21	27	No	2.4	5.97	-2.75	-1.2
PILOTE_4	17	23	No	2.4	-5.97	2.75	-1.2
PILOTE_5	16	22	No	2.4	0.	2.75	-1.2
PILOTE_6	18	24	No	2.4	5.97	2.75	-1.2

Table: Connectivity - Frame, Part 2 of 2

Table: Connectivity - Frame, Part 2 of 2

Frame	GUID
1	365daef1-a597-4fa5-9ed8-260b50cdeb4f
2	0cf988c8-3726-4760-b88a-917ea1c408c5
3	983ca876-e58b-433d-83cf-1711d4153af4

Table: Connectivity - Frame, Part 2 of 2

Frame	GUID
4	3716dced-653f-4715-9ed6-7e0553eddc60
5	6f3fc71c-31be-44a1-9368-fe39256ace78
PILOTE_1	2ffc71c8-a7cd-4848-96b7-1a510636d332
PILOTE_2	5084e949-0886-47db-83d8-5c3f0471fe63
PILOTE_3	416e71c3-fffe-4b51-a2ae-47fe5cc87d10
PILOTE_4	ce67d241-102b-4aee-9605-b52c6de040cc
PILOTE_5	bb973cf7-6917-4d95-a8c9-4d5f1164b684
PILOTE_6	8f439c59-b79c-4962-9392-1455f4e978e0

Table: Connectivity - Link, Part 1 of 2

Table: Connectivity - Link, Part 1 of 2

Link	JointI	JointJ	Length	CentroidX	CentroidY	CentroidZ
			m	m	m	m
1	5	9	1.5	-5.97	0.	9.11
2	3	8	1.5	0.	0.	9.11
3	7	10	1.5	5.97	0.	9.11
4	30	AP_02	0.46	-7.75	0.23	9.86
5	30	AP_01	0.46	-7.75	-0.23	9.86
6	29	AP_04	0.46	-4.65	0.23	9.86
7	29	AP_03	0.46	-4.65	-0.23	9.86
8	28	AP_06	0.46	-1.55	0.23	9.86
9	28	AP_05	0.46	-1.55	-0.23	9.86
10	31	AP_08	0.46	1.55	0.23	9.86
11	31	AP_07	0.46	1.55	-0.23	9.86
12	32	AP_10	0.46	4.65	0.23	9.86
13	32	AP_09	0.46	4.65	-0.23	9.86
14	33	AP_12	0.46	7.75	0.23	9.86
15	33	AP_11	0.46	7.75	-0.23	9.86
16	4	2	5.97	-2.985	0.	1.75
17	6	2	5.97	2.985	0.	1.75

Table: Connectivity - Link, Part 2 of 2

Table: Connectivity - Link, Part 2 of 2

Link	GUID
1	a344685e-d71a-4200-a446-4443b601e063
2	a344685e-d71a-4200-a446-4443b601e063
3	a344685e-d71a-4200-a446-4443b601e063
4	a344685e-d71a-4200-a446-4443b601e063
5	a344685e-d71a-4200-a446-4443b601e063

Table: Connectivity - Link, Part 2 of 2

Link	GUID
6	a344685e-d71a-4200-a446-4443b601e063
7	a344685e-d71a-4200-a446-4443b601e063
8	a344685e-d71a-4200-a446-4443b601e063
9	a344685e-d71a-4200-a446-4443b601e063
10	a344685e-d71a-4200-a446-4443b601e063
11	a344685e-d71a-4200-a446-4443b601e063
12	a344685e-d71a-4200-a446-4443b601e063
13	a344685e-d71a-4200-a446-4443b601e063
14	a344685e-d71a-4200-a446-4443b601e063
15	a344685e-d71a-4200-a446-4443b601e063
16	a344685e-d71a-4200-a446-4443b601e063
17	a344685e-d71a-4200-a446-4443b601e063

Table: Frame Auto Mesh Assignments

Table: Frame Auto Mesh Assignments

Frame	AutoMesh	AtJoints	AtFrames	NumSegments	MaxLength	MaxDegrees
					m	Degrees
1	Yes	Yes	No	0	1.	0.
2	Yes	Yes	No	0	1.	0.
3	Yes	Yes	No	0	1.	0.
4	Yes	Yes	No	0	1.	0.
5	Yes	Yes	No	0	1.	0.
PILOTE_1	Yes	Yes	No	0	1.	0.
PILOTE_2	Yes	Yes	No	0	1.	0.
PILOTE_3	Yes	Yes	No	0	1.	0.
PILOTE_4	Yes	Yes	No	0	1.	0.
PILOTE_5	Yes	Yes	No	0	1.	0.
PILOTE_6	Yes	Yes	No	0	1.	0.

Table: Frame Section Assignments

Table: Frame Section Assignments

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
1	Rectangular	N.A.	ENCEPADO	ENCEPADO	Default
2	Circular	N.A.	FUSTE_140	FUSTE_140	Default
3	Circular	N.A.	FUSTE_140	FUSTE_140	Default
4	Circular	N.A.	FUSTE_140	FUSTE_140	Default
5	Rectangular	N.A.	DINTEL	DINTEL	Default
PILOTE_1	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_2	Circular	N.A.	PILOTE_125	PILOTE_125	Default

Table: Frame Section Assignments

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
PILOTE_3	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_4	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_5	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_6	Circular	N.A.	PILOTE_125	PILOTE_125	Default

Table: Frame Section Properties 01 - General, Part 1 of 6

Table: Frame Section Properties 01 - General, Part 1 of 6

SectionName	Material	Shape	t3	t2	Area	TorsConst
			m	m	m2	m4
DINTEL	HA30	Rectangular	1.5	2.1	3.15	1.322437
ENCEPADO	HA30	Rectangular	14.2	7.55	107.21	1359.27372
FUSTE_140	HA30	Circle	1.4		1.53938	0.377148
PILOTE_125	HA30	Circle	1.25		1.227185	0.239684

Table: Frame Section Properties 01 - General, Part 2 of 6

Table: Frame Section Properties 01 - General, Part 2 of 6

SectionName	I33	I22	I23	AS2	AS3	S33	S22
	m4	m4	m4	m2	m2	m3	m3
DINTEL	0.590625	1.157625	0.	2.625	2.625	0.7875	1.1025
ENCEPADO	1801.485367	509.269835	0.	89.341667	89.341667	253.730333	134.905917
FUSTE_140	0.188574	0.188574	0.	1.385442	1.385442	0.269392	0.269392
PILOTE_125	0.119842	0.119842	0.	1.104466	1.104466	0.191748	0.191748

Table: Frame Section Properties 01 - General, Part 3 of 6

Table: Frame Section Properties 01 - General, Part 3 of 6

SectionName	Z33	Z22	R33	R22	ConcCol	ConcBeam	Color
	m3	m3	m	m			
DINTEL	1.18125	1.65375	0.433013	0.606218	Yes	No	Magenta
ENCEPADO	380.5955	202.358875	4.099187	2.179497	Yes	No	Red
FUSTE_140	0.457333	0.457333	0.35	0.35	Yes	No	Gray8Dark
PILOTE_125	0.325521	0.325521	0.3125	0.3125	Yes	No	Green

Table: Frame Section Properties 01 - General, Part 4 of 6

Table: Frame Section Properties 01 - General, Part 4 of 6

SectionName	TotalWt	TotalMass	FromFile	AMod	A2Mod	A3Mod	JMod
	KN	KN-s2/m					
DINTEL	1450.575	147.92	No	1.	1.	1.	1.
ENCEPADO	4690.438	478.29	No	1.	1.	1.	1.
FUSTE_140	763.148	77.82	No	1.	1.	1.	1.
PILOTE_125	441.786	45.05	No	1.	1.	1.	1.

Table: Frame Section Properties 01 - General, Part 5 of 6

Table: Frame Section Properties 01 - General, Part 5 of 6

SectionName	I2Mod	I3Mod	MMod	WMod	GUID
DINTEL	1.	1.	1.	1.	
ENCEPADO	1.	1.	1.	1.	
FUSTE_140	1.	1.	1.	1.	
PILOTE_125	1.	1.	1.	1.	

Table: Frame Section Properties 01 - General, Part 6 of 6

Table: Frame Section Properties 01 - General, Part 6 of 6

SectionName	Notes
DINTEL	Added 20/06/2017 16:50:47
ENCEPADO	Added 20/06/2017 16:52:17
FUSTE_140	Added 20/06/2017 16:51:32
PILOTE_125	Added 20/06/2017 16:51:58

Table: Frame Section Properties 02 - Concrete Column, Part 1 of 2

Table: Frame Section Properties 02 - Concrete Column, Part 1 of 2

SectionName	RebarMatL	RebarMatC	ReinfConfig	LatReinf	Cover	NumBars3Dir	NumBars2Dir	NumBarsCirc
					m			
DINTEL	A615Gr60	A615Gr60	Rectangular	Ties	0.04	3	3	
ENCEPADO	A615Gr60	A615Gr60	Rectangular	Ties	0.04	3	3	
FUSTE_140	A615Gr60	A615Gr60	Circular	Ties	0.04			8
PILOTE_125	A615Gr60	A615Gr60	Circular	Ties	0.04			8

Table: Frame Section Properties 02 - Concrete Column, Part 2 of 2

Table: Frame Section Properties 02 - Concrete Column, Part 2 of 2

SectionName	BarSizeL	BarSizeC	SpacingC	NumCBars2	NumCBars3	ReinfType
			m			
DINTEL	#9	#4	0.15	3	3	Design
ENCEPADO	#9	#4	0.15	3	3	Design
FUSTE_140	#9	#4	0.15			Design
PILOTE_125	#9	#4	0.15			Design

Table: Function - Response Spectrum - User

Table: Function - Response Spectrum - User

Name	Period	Accel	FuncDamp
	Sec		
UNIFRS	0.	1.	0.05
UNIFRS	1.	1.	

Table: Joint Constraint Assignments

Table: Joint Constraint Assignments

Joint	Constraint	Type
1	ENCEPADO	Body
16	ENCEPADO	Body
17	ENCEPADO	Body
18	ENCEPADO	Body
19	ENCEPADO	Body
20	ENCEPADO	Body
21	ENCEPADO	Body

Table: Joint Coordinates, Part 1 of 2

Table: Joint Coordinates, Part 1 of 2

Joint	CoordSys	CoordType	XorR	Y	Z	SpecialJt	GlobalX
			m	m	m		m
1	GLOBAL	Cartesian	0.	0.	0.	Yes	0.
2	GLOBAL	Cartesian	0.	0.	1.75	Yes	0.
3	GLOBAL	Cartesian	0.	0.	8.36	Yes	0.
4	GLOBAL	Cartesian	-5.97	0.	1.75	No	-5.97
5	GLOBAL	Cartesian	-5.97	0.	8.36	No	-5.97
6	GLOBAL	Cartesian	5.97	0.	1.75	No	5.97
7	GLOBAL	Cartesian	5.97	0.	8.36	No	5.97
8	GLOBAL	Cartesian	0.	0.	9.86	Yes	0.
9	GLOBAL	Cartesian	-5.97	0.	9.86	Yes	-5.97
10	GLOBAL	Cartesian	5.97	0.	9.86	Yes	5.97
11	GLOBAL	Cartesian	-9.21	0.	9.86	Yes	-9.21
12	GLOBAL	Cartesian	9.21	0.	9.86	Yes	9.21
16	GLOBAL	Cartesian	0.	2.75	0.	Yes	0.
17	GLOBAL	Cartesian	-5.97	2.75	0.	Yes	-5.97
18	GLOBAL	Cartesian	5.97	2.75	0.	Yes	5.97
19	GLOBAL	Cartesian	0.	-2.75	0.	Yes	0.
20	GLOBAL	Cartesian	-5.97	-2.75	0.	Yes	-5.97
21	GLOBAL	Cartesian	5.97	-2.75	0.	Yes	5.97
22	GLOBAL	Cartesian	0.	2.75	-2.4	Yes	0.
23	GLOBAL	Cartesian	-5.97	2.75	-2.4	Yes	-5.97
24	GLOBAL	Cartesian	5.97	2.75	-2.4	Yes	5.97
25	GLOBAL	Cartesian	0.	-2.75	-2.4	Yes	0.
26	GLOBAL	Cartesian	-5.97	-2.75	-2.4	Yes	-5.97
27	GLOBAL	Cartesian	5.97	-2.75	-2.4	Yes	5.97
28	GLOBAL	Cartesian	-1.55	0.	9.86	Yes	-1.55
29	GLOBAL	Cartesian	-4.65	0.	9.86	Yes	-4.65
30	GLOBAL	Cartesian	-7.75	0.	9.86	Yes	-7.75
31	GLOBAL	Cartesian	1.55	0.	9.86	Yes	1.55
32	GLOBAL	Cartesian	4.65	0.	9.86	Yes	4.65
33	GLOBAL	Cartesian	7.75	0.	9.86	Yes	7.75
AP_01	GLOBAL	Cartesian	-7.75	-0.46	9.86	Yes	-7.75
AP_02	GLOBAL	Cartesian	-7.75	0.46	9.86	Yes	-7.75
AP_03	GLOBAL	Cartesian	-4.65	-0.46	9.86	Yes	-4.65
AP_04	GLOBAL	Cartesian	-4.65	0.46	9.86	Yes	-4.65
AP_05	GLOBAL	Cartesian	-1.55	-0.46	9.86	Yes	-1.55
AP_06	GLOBAL	Cartesian	-1.55	0.46	9.86	Yes	-1.55
AP_07	GLOBAL	Cartesian	1.55	-0.46	9.86	Yes	1.55
AP_08	GLOBAL	Cartesian	1.55	0.46	9.86	Yes	1.55
AP_09	GLOBAL	Cartesian	4.65	-0.46	9.86	Yes	4.65

Table: Joint Coordinates, Part 1 of 2

Joint	CoordSys	CoordType	XorR	Y	Z	SpecialJt	GlobalX
			m	m	m		m
AP_10	GLOBAL	Cartesian	4.65	0.46	9.86	Yes	4.65
AP_11	GLOBAL	Cartesian	7.75	-0.46	9.86	Yes	7.75
AP_12	GLOBAL	Cartesian	7.75	0.46	9.86	Yes	7.75

Table: Joint Coordinates, Part 2 of 2

Table: Joint Coordinates, Part 2 of 2

Joint	GlobalY	GlobalZ	GUID
	m	m	
1	0.	0.	420e3828-b35a-4d04-afe7-c965b759256a
2	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
3	0.	8.36	420e3828-b35a-4d04-afe7-c965b759256a
4	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
5	0.	8.36	420e3828-b35a-4d04-afe7-c965b759256a
6	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
7	0.	8.36	420e3828-b35a-4d04-afe7-c965b759256a
8	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
9	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
10	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
11	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
12	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
16	2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
17	2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
18	2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
19	-2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
20	-2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
21	-2.75	0.	420e3828-b35a-4d04-afe7-c965b759256a
22	2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
23	2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
24	2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
25	-2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
26	-2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
27	-2.75	-2.4	420e3828-b35a-4d04-afe7-c965b759256a

Table: Joint Coordinates, Part 2 of 2

Joint	GlobalY	GlobalZ	GUID
	m	m	
28	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
29	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
30	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
31	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
32	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
33	0.	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_01	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_02	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_03	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_04	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_05	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_06	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_07	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_08	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_09	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_10	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_11	-0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a
AP_12	0.46	9.86	420e3828-b35a-4d04-afe7-c965b759256a

Table: Joint Loads - Force, Part 1 of 2

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
2	DEAD	GLOBAL	0.	0.	-900.99	0.	0.
AP_06	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_06	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_06	SC_DIST	GLOBAL	0.	0.	-75.604	0.	0.
AP_06	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_06	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_06	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_06	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_06	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_06	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_04	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_04	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_04	SC_DIST	GLOBAL	0.	0.	-325.087	0.	0.
AP_04	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_04	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
AP_04	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_04	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_04	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_04	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_02	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_02	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_02	SC_DIST	GLOBAL	0.	0.	-148.453	0.	0.
AP_02	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_02	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_02	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_02	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_02	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_02	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_08	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_08	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_08	SC_DIST	GLOBAL	0.	0.	-111.144	0.	0.
AP_08	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_08	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_08	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_08	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_08	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_08	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_10	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_10	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_10	SC_DIST	GLOBAL	0.	0.	-118.498	0.	0.
AP_10	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_10	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_10	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_10	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_10	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_10	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_12	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_12	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_12	SC_DIST	GLOBAL	0.	0.	-38.714	0.	0.
AP_12	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_12	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_12	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_12	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_12	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_12	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_05	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_05	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_05	SC_DIST	GLOBAL	0.	0.	-75.604	0.	0.
AP_05	CARROS	GLOBAL	0.	0.	-238.2	0.	0.
AP_05	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_05	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_05	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_05	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_05	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_05	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_03	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_03	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_03	SC_DIST	GLOBAL	0.	0.	-325.087	0.	0.
AP_03	CARROS	GLOBAL	0.	0.	-567.018	0.	0.

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
AP_03	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_03	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_03	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_03	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_03	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_03	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_01	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_01	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_01	SC_DIST	GLOBAL	0.	0.	-148.453	0.	0.
AP_01	CARROS	GLOBAL	0.	0.	-219.544	0.	0.
AP_01	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_01	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_01	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_01	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_01	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_01	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_07	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_07	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_07	SC_DIST	GLOBAL	0.	0.	-111.144	0.	0.
AP_07	CARROS	GLOBAL	0.	0.	-148.569	0.	0.
AP_07	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_07	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_07	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_07	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_07	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_07	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_09	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_09	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_09	SC_DIST	GLOBAL	0.	0.	-118.498	0.	0.
AP_09	CARROS	GLOBAL	0.	0.	-30.918	0.	0.
AP_09	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_09	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_09	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_09	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_09	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_09	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_11	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_11	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_11	SC_DIST	GLOBAL	0.	0.	-38.714	0.	0.
AP_11	CARROS	GLOBAL	0.	0.	0.	0.	0.
AP_11	FRENADO	GLOBAL	-16.32	-39.93	0.	0.	0.
AP_11	RETYFLU	GLOBAL	-16.64	-38.03	0.	0.	0.
AP_11	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_11	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_11	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_11	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.

Table: Joint Loads - Force, Part 2 of 2

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
2	DEAD	0.	c14e8835-031d-4739-bd2d-df3523f1ceea

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_06	PP_TABLERO	0.	c5af0a77-38f6-4737-b94e-4dfba1b1f628
AP_06	CPERM_TABLERO	0.	b103467f-c312-4539-817a-32a8fad7918c
AP_06	SC_DIST	0.	d316f0c7-4a75-45b9-9604-c06c94d2a55e
AP_06	FRENADO	0.	d541a7ca-a4f6-4f22-98c4-f9beaf3d6778
AP_06	RETYFLU	0.	88ac2373-caf5-4acc-9de8-cc7abe66ee93
AP_06	TEMP_UNIF	0.	be875132-dca1-429a-be6e-b76d8d9d4c58
AP_06	VIENTO	0.	e197587b-2ab8-4c03-8f1c-073ad01f7811
AP_06	SISMO_X	0.	d0963773-a596-4f40-8dd1-c1cf6bbd4d26
AP_06	SISMO_Y	0.	b20801a2-4119-4f5e-a461-0be2172577d5
AP_04	PP_TABLERO	0.	dc1c17f2-7147-45b4-ad61-4b34ec37d8f0
AP_04	CPERM_TABLERO	0.	0e3cf56b-709d-4bab-8431-1e3eedf4138f
AP_04	SC_DIST	0.	06c1204e-2e1f-4155-80fe-bf9a2e258bf0
AP_04	FRENADO	0.	645f20de-1162-4636-9bf8-049de5976969
AP_04	RETYFLU	0.	fa5a5064-eee5-4533-903a-9dc823c7780e
AP_04	TEMP_UNIF	0.	6b102a0a-20d3-4b5b-9356-322de0bc4364
AP_04	VIENTO	0.	306d2c40-0d86-48f6-8bb1-3cd8cf71e833
AP_04	SISMO_X	0.	a2b8769e-d817-4e83-8544-67900ac67e95
AP_04	SISMO_Y	0.	81e8afb7-53ab-43db-9bf0-bcbc67731212
AP_02	PP_TABLERO	0.	d7ffbb96-c53b-4537-8110-153749f8d4fb
AP_02	CPERM_TABLERO	0.	b35c181a-4106-4c84-a7b5-7472b3b0783a
AP_02	SC_DIST	0.	38e59bb4-6086-407c-997f-7f8a143cc20a
AP_02	FRENADO	0.	a9f3a89e-e825-4e23-a3e9-a91fdb2e59f0
AP_02	RETYFLU	0.	a1b3a273-97cd-4c0d-bf25-141ca6b82009
AP_02	TEMP_UNIF	0.	db327d0b-a2d6-4833-b907-554e71afe465
AP_02	VIENTO	0.	5c853f69-c754-4139-a346-a1576360e39f
AP_02	SISMO_X	0.	d0ea6a44-d6ba-439d-b3e8-2573acda1ef9
AP_02	SISMO_Y	0.	659fa843-d0e9-4d31-9f2e-aa943ae9fd99
AP_08	PP_TABLERO	0.	f00e7bb6-46a1-4ca9-ab41-3805b1724fd3
AP_08	CPERM_TABLERO	0.	38703a04-d180-4fb5-945e-e9130e5d528a
AP_08	SC_DIST	0.	42cdadc9-17ca-4575-858f-747d0087f55f

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_08	FRENADO	0.	862576ad-e5d5-441d-af6c-89c52514a7ae
AP_08	RETYFLU	0.	2299f0a8-3856-432a-a83e-661c345fbd52
AP_08	TEMP_UNIF	0.	0412bfb5-a3f5-4e5c-b2b3-5195baf240f8
AP_08	VIENTO	0.	755817c0-ec55-4a69-8c30-984e0ce5f97d
AP_08	SISMO_X	0.	ce56a27f-5bdd-458f-a666-764e79dc9e4d
AP_08	SISMO_Y	0.	6ef742e6-e61c-4c5e-aef1-05ca6c4ae243
AP_10	PP_TABLERO	0.	76eb3885-1e10-44a8-93fc-bf0869681a65
AP_10	CPERM_TABLERO	0.	270af874-6681-41e3-82b3-65f8e3f25ac8
AP_10	SC_DIST	0.	3bfba561-1992-4b1f-9366-e6d1b3be2dde
AP_10	FRENADO	0.	af5aea9b-da0f-4e43-a3c3-8f97e0ec9add
AP_10	RETYFLU	0.	47cb3dde-7105-49d5-b179-86b988fb8321
AP_10	TEMP_UNIF	0.	73bbbb9c-e399-42cb-ac5d-136e74fecd61
AP_10	VIENTO	0.	4c4e7ee9-e75d-4ec7-9f96-9eddf65afdf4
AP_10	SISMO_X	0.	2c4cab18-f425-4549-b72d-218b97de5aad
AP_10	SISMO_Y	0.	aaebf210-c270-4593-a7e5-809deee86ea4
AP_12	PP_TABLERO	0.	e8e29633-8a0c-4135-8f78-de8209b97325
AP_12	CPERM_TABLERO	0.	63bf50cd-5d36-4375-9cd0-a495fddb5f1f
AP_12	SC_DIST	0.	608cda84-8ec4-4940-85d3-ca25309784f9
AP_12	FRENADO	0.	ab5dea2a-9412-4bf4-a5c6-9441c5ee0e3c
AP_12	RETYFLU	0.	e5a6eb2c-4336-4d78-9881-90f8b7eaf3d6
AP_12	TEMP_UNIF	0.	2da44388-2e3c-4d6a-9b8e-2da3ff6d1789
AP_12	VIENTO	0.	898bf378-5417-4918-aaea-796ceee2b338
AP_12	SISMO_X	0.	1e2b61af-b0bd-4c32-aa33-d4dd5d61d5e1
AP_12	SISMO_Y	0.	ac015d37-63f2-4714-8ed4-ed7bd92db545
AP_05	PP_TABLERO	0.	5b256a81-0727-4240-8656-c02cd2965edc
AP_05	CPERM_TABLERO	0.	eee07d6d-6c88-4281-8e18-205928eda906
AP_05	SC_DIST	0.	1b4cd54d-3132-4a58-b8ba-86dccb41dc37
AP_05	CARROS	0.	d2d3a914-4097-4db7-8947-0521630e546b
AP_05	FRENADO	0.	9bf01eb5-ecd7-44f7-a6c9-e62ce81cef93
AP_05	RETYFLU	0.	bfd77e18-9419-4168-ba7c-5016840628c4

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_05	TEMP_UNIF	0.	fd93ac31-ba05-4c19-895f-ad34b6fa4658
AP_05	VIENTO	0.	fd672b0e-b448-45c5-b94f-e54079d2d739
AP_05	SISMO_X	0.	39a40cbd-94d6-4233-a5fc-612da10270df
AP_05	SISMO_Y	0.	a262acff-a9c9-4d87-8e26-1346425c4b5b
AP_03	PP_TABLERO	0.	4303bf51-db43-4929-97b8-cbd2a207bfd8
AP_03	CPERM_TABLERO	0.	f3c3445f-71a3-49bc-aecf-977f57462d73
AP_03	SC_DIST	0.	d6580775-c428-4c9c-9396-8f6b954a19c4
AP_03	CARROS	0.	7afa6ea2-80a5-4c4c-98bd-a988a2333de9
AP_03	FRENADO	0.	082d4803-74c3-49d3-bc8b-cf5d00ba19cc
AP_03	RETYFLU	0.	81413689-1466-45e6-be47-34e7638bb147
AP_03	TEMP_UNIF	0.	3a078e16-f34e-4771-a0b7-ef922a74f2d2
AP_03	VIENTO	0.	52198189-598c-488a-b671-d98cad235e2f
AP_03	SISMO_X	0.	1aaaaac1-def4-49e5-bab4-3fbab761ddc9
AP_03	SISMO_Y	0.	460ef773-718c-4c63-aa6d-b7827fac54cb
AP_01	PP_TABLERO	0.	60679f8f-4406-4c95-b5e2-c979f615cd06
AP_01	CPERM_TABLERO	0.	58cdf405-8de2-4eda-90d5-cfe949dba0a4
AP_01	SC_DIST	0.	c8555605-c8f1-435f-b067-53cab7f83a06
AP_01	CARROS	0.	bef0dd79-24c7-44a4-8dad-790a23b4d143
AP_01	FRENADO	0.	065e7041-1446-4370-aa52-1a60dcb1a1fa
AP_01	RETYFLU	0.	42795b7a-8b4e-46af-b45f-b66353d87acf
AP_01	TEMP_UNIF	0.	c941a7bb-2669-494b-99da-1ff32e5cea5d
AP_01	VIENTO	0.	3710b385-0a70-4461-af2b-4b3ba7c8d609
AP_01	SISMO_X	0.	692bce74-2321-479e-bf10-d0cf45842961
AP_01	SISMO_Y	0.	f352b0de-7e93-43f1-80db-22378b4467eb
AP_07	PP_TABLERO	0.	49d76726-6467-4561-b145-d258b0d744bf
AP_07	CPERM_TABLERO	0.	028ca3b7-a93f-4cb4-96b6-c8b76cf110a0
AP_07	SC_DIST	0.	f65b85a8-a28b-442d-b5a2-1807f8504b30
AP_07	CARROS	0.	bf3a0287-aca5-4c1f-a0f1-7ceacdb5ebeb
AP_07	FRENADO	0.	55e88195-7407-4572-acd7-7d540f0c105d
AP_07	RETYFLU	0.	8cfabc6f-86a9-4189-8d2b-60bbd62141aa

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_07	TEMP_UNIF	0.	9d51ee00-8b2e-4de5-aedb-b3862dd1324c
AP_07	VIENTO	0.	483ce4c3-3b14-46f7-a67e-a8104f139907
AP_07	SISMO_X	0.	59441883-0389-47dd-a53a-1a6f3777f43e
AP_07	SISMO_Y	0.	d826da76-b57c-4ef0-9ec3-0d4b2aa3343c
AP_09	PP_TABLERO	0.	fc4910e9-7b6e-4835-ad8e-c764fa195105
AP_09	CPERM_TABLERO	0.	746fb88a-6010-4376-803a-8cae2e3de2c5
AP_09	SC_DIST	0.	aa90e646-328e-48b7-a871-338ffcba723d
AP_09	CARROS	0.	f9f77940-3128-4180-9e3c-4a47a71799b5
AP_09	FRENADO	0.	e04d8411-ec33-4caa-b51e-06eab8639f60
AP_09	RETYFLU	0.	e74baae7-170a-4761-8db6-7b939d8be1eb
AP_09	TEMP_UNIF	0.	ec09005f-bb75-48bb-8ceb-cbff336b9cc1
AP_09	VIENTO	0.	378de8ac-600e-4adf-a40b-75e2305fe67a
AP_09	SISMO_X	0.	be197aef-960b-4ecd-be31-6cb552530c59
AP_09	SISMO_Y	0.	59523c64-adc8-4e43-984a-7b8e7da5fe5b
AP_11	PP_TABLERO	0.	96407d75-dd6e-46c3-bd01-f5b410b9a1ee
AP_11	CPERM_TABLERO	0.	cd2a5a4e-a14b-49fb-9254-a387cee8a7db
AP_11	SC_DIST	0.	ac93668f-87ae-400d-9d3e-57fd780c9b72
AP_11	CARROS	0.	0888c9e6-1333-4576-ac9d-22dd63112941
AP_11	FRENADO	0.	3709adcf-3dfd-4dfd-9372-5f7ba9ec89be
AP_11	RETYFLU	0.	8e456d53-84a0-43db-b114-74c16d783c54
AP_11	TEMP_UNIF	0.	4d3161ab-9609-4045-80a6-3f82bfa050db
AP_11	VIENTO	0.	e124c8bc-60c8-4af6-a967-f5b9c6231390
AP_11	SISMO_X	0.	0455c8cf-6209-4437-8a31-75810a608641
AP_11	SISMO_Y	0.	7156e985-66ee-49fb-811b-ddb1b91cd498

Table: Joint Restraint Assignments

Table: Joint Restraint Assignments

Joint	U1	U2	U3	R1	R2	R3
22	Yes	Yes	Yes	No	No	No
23	Yes	Yes	Yes	No	No	No
24	Yes	Yes	Yes	No	No	No
25	Yes	Yes	Yes	No	No	No

Table: Joint Restraint Assignments

Joint	U1	U2	U3	R1	R2	R3
26	Yes	Yes	Yes	No	No	No
27	Yes	Yes	Yes	No	No	No

Table: Link Property Assignments

Table: Link Property Assignments

Link	LinkType	LinkJoints	LinkProp	LinkFDProp	PropMod
1	Linear	TwoJoint	INFRIG	None	1.
2	Linear	TwoJoint	INFRIG	None	1.
3	Linear	TwoJoint	INFRIG	None	1.
4	Linear	TwoJoint	INFRIG	None	1.
5	Linear	TwoJoint	INFRIG	None	1.
6	Linear	TwoJoint	INFRIG	None	1.
7	Linear	TwoJoint	INFRIG	None	1.
8	Linear	TwoJoint	INFRIG	None	1.
9	Linear	TwoJoint	INFRIG	None	1.
10	Linear	TwoJoint	INFRIG	None	1.
11	Linear	TwoJoint	INFRIG	None	1.
12	Linear	TwoJoint	INFRIG	None	1.
13	Linear	TwoJoint	INFRIG	None	1.
14	Linear	TwoJoint	INFRIG	None	1.
15	Linear	TwoJoint	INFRIG	None	1.
16	Linear	TwoJoint	INFRIG	None	1.
17	Linear	TwoJoint	INFRIG	None	1.

Table: Link Property Definitions 01 - General, Part 1 of 3

Table: Link Property Definitions 01 - General, Part 1 of 3

Link	LinkType	Mass	Weight	RotInert1	RotInert2	RotInert3	DefLength
		KN-s2/m	KN	KN-m-s2	KN-m-s2	KN-m-s2	m
INFRIG	Linear	0.	0.	0.	0.	0.	1.

Table: Link Property Definitions 01 - General, Part 2 of 3

Table: Link Property Definitions 01 - General, Part 2 of 3

Link	DefArea	PDM2I	PDM2J	PDM3I	PDM3J	Color
	m2					
INFRIG	1.	0.	0.	0.	0.	Magenta

Table: Link Property Definitions 01 - General, Part 3 of 3

Table: Link Property Definitions 01 - General, Part 3 of 3

Link	GUID	Notes
INFRIG		Added 20/06/2017 16:58:28

Table: Link Property Definitions 02 - Linear

Table: Link Property Definitions 02 - Linear

Link	DOF	Fixed
INFRIG	U1	Yes
INFRIG	U2	Yes
INFRIG	U3	Yes
INFRIG	R1	Yes
INFRIG	R2	Yes
INFRIG	R3	Yes

Table: Load Case Definitions, Part 1 of 3

Table: Load Case Definitions, Part 1 of 3

Case	Type	InitialCond	ModalCase	BaseCase	MassSource	DesTypeOpt	DesignType
DEAD	LinStatic	Zero				Prog Det	Dead
MODAL	LinModal	Zero				Prog Det	Other
PP_TABLERO	LinStatic	Zero				Prog Det	Dead
CPERM_TABLERO	LinStatic	Zero				Prog Det	Dead
SC_DIST	LinStatic	Zero				Prog Det	Dead
CARROS	LinStatic	Zero				Prog Det	Dead
RETYFLU	LinStatic	Zero				Prog Det	Dead
FRENADO	LinStatic	Zero				Prog Det	Dead
SISMO_X	LinStatic	Zero				Prog Det	Dead
VIENTO	LinStatic	Zero				Prog Det	Dead
SISMO_Y	LinStatic	Zero				Prog Det	Dead
TEMP_UNIF	LinStatic	Zero				Prog Det	Dead

Table: Load Case Definitions, Part 2 of 3

Table: Load Case Definitions, Part 2 of 3

Case	DesActOpt	DesignAct	AutoType	RunCase	CaseStatus	GUID
DEAD	Prog Det	Non-Composite	None	Yes	Finished	
MODAL	Prog Det	Other	None	Yes	Finished	
PP_TABLERO	Prog Det	Non-Composite	None	Yes	Finished	
CPERM_TABLERO	Prog Det	Non-Composite	None	Yes	Finished	
SC_DIST	Prog Det	Non-Composite	None	Yes	Finished	
CARROS	Prog Det	Non-Composite	None	Yes	Finished	
RETYFLU	Prog Det	Non-Composite	None	Yes	Finished	
FRENADO	Prog Det	Non-Composite	None	Yes	Finished	
SISMO_X	Prog Det	Non-Composite	None	Yes	Finished	
VIENTO	Prog Det	Non-Composite	None	Yes	Finished	
SISMO_Y	Prog Det	Non-Composite	None	Yes	Finished	

Table: Load Case Definitions, Part 2 of 3

Case	DesActOpt	DesignAct	AutoType	RunCase	CaseStatus	GUID
TEMP_UNIF	Prog Det	Non-Composite	None	Yes	Finished	

Table: Load Case Definitions, Part 3 of 3

Table: Load Case Definitions, Part 3 of 3

Case	Notes
DEAD	
MODAL	
PP_TABLERO	
CPERM_TABLERO	
SC_DIST	
CARROS	
RETYFLU	
FRENADO	
SISMO_X	
VIENTO	
SISMO_Y	
TEMP_UNIF	

Table: Load Pattern Definitions

Table: Load Pattern Definitions

LoadPat	DesignType	SelfWtMult	AutoLoad	GUID	Notes
DEAD	Dead	1.		ecd0fd5b-2d3d-4d5f-ac9b-94981adf879a	
PP_TABLERO	Dead	0.		f0cc05cc-801a-4174-836d-053ee05b6058	
CPERM_TABLERO	Dead	0.		a3896ddb-ecbe-4ca6-8580-88881c076065	
SC_DIST	Dead	0.		28c00056-e225-46a8-809b-e536eecbbe75	
CARROS	Dead	0.		50d33acb-b982-43ee-827d-18ec6508e310	
RETYFLU	Dead	0.		7e04c52a-9f85-47a5-abe7-c9c0e6d0f38d	
TEMP_UNIF	Dead	0.		6b2934f4-2464-4ebc-8688-3fb7a5c29a2d	
FRENADO	Dead	0.		599b91dc-0fcd-4479-84ee-38479a5ee3b9	
SISMO_X	Dead	0.		975bf963-a596-42c5-8735-f15ed334e04a	
VIENTO	Dead	0.		f621d03e-0c1a-406f-986e-f10cb56451a9	
SISMO_Y	Dead	0.		1d719ac0-1ee2-4d12-af44-f39906d35526	

Table: Mass Source

Table: Mass Source

MassSource	Elements	Masses	Loads	IsDefault
MSSSRC1	Yes	Yes	No	Yes

Table: Material Properties 01 - General, Part 1 of 2

Table: Material Properties 01 - General, Part 1 of 2

Material	Type	SymType	TempDepend	Color	GUID
A615Gr60	Rebar	Uniaxial	No	Red	
A992Fy50	Steel	Isotropic	No	Red	
HA30	Concrete	Isotropic	No	Magenta	

Table: Material Properties 01 - General, Part 2 of 2

Table: Material Properties 01 - General, Part 2 of 2

Material	Notes
A615Gr60	ASTM A615 Grade 60 20/06/2017 16:50:47
A992Fy50	ASTM A992 Grade 50 20/06/2017 16:47:23
HA30	Customary f'c 4000 psi 20/06/2017 16:47:23

Table: Material Properties 02 - Basic Mechanical Properties

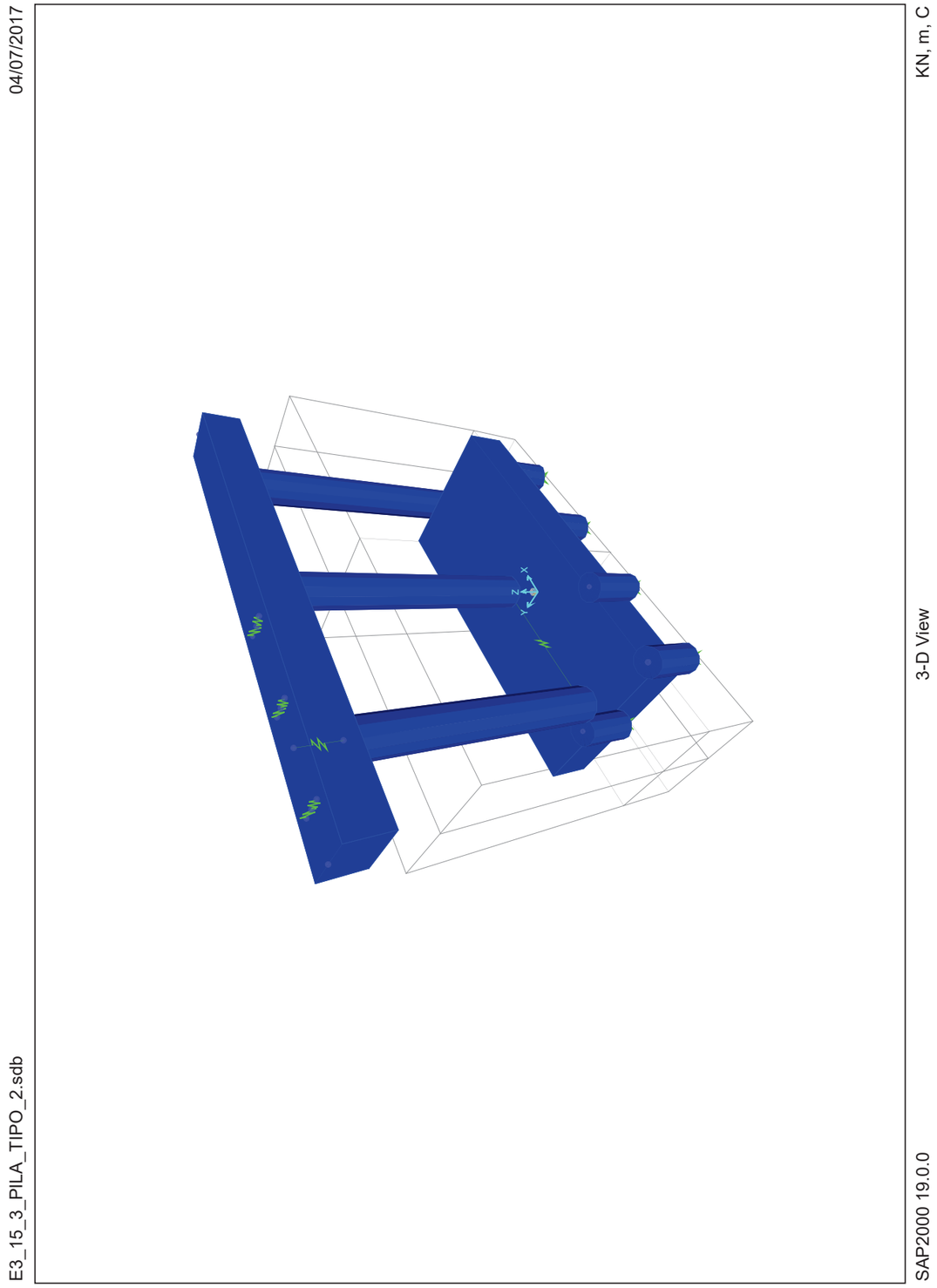
Table: Material Properties 02 - Basic Mechanical Properties

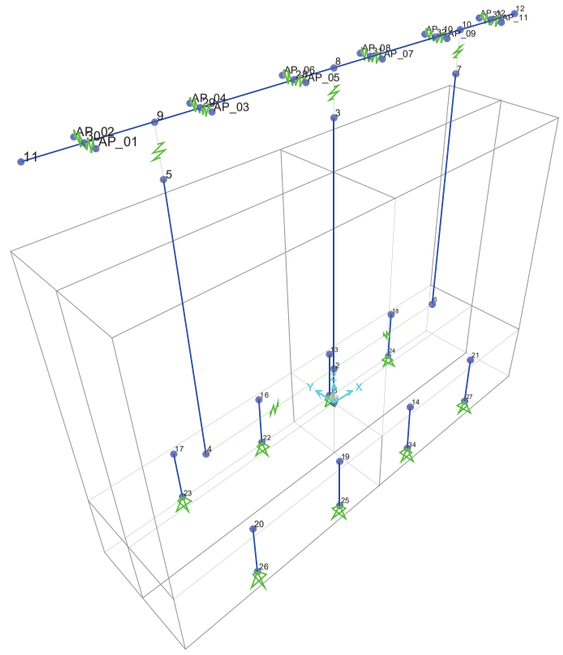
Material	UnitWeight	UnitMass	E1	G12	U12	A1
	KN/m3	KN-s2/m4	KN/m2	KN/m2		1/C
A615Gr60	7.6973E+01	7.8490E+00	199947978.8			1.1700E-05
A992Fy50	7.6973E+01	7.8490E+00	199947978.8	76903068.77	0.3	1.1700E-05
HA30	2.5000E+01	2.5493E+00	28576790.96	11906996.23	0.2	1.0000E-05

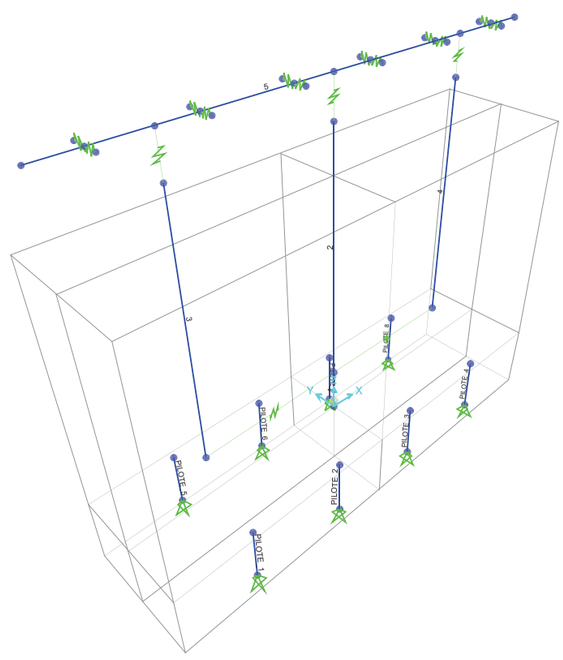
Table: Material Properties 06 - Damping Parameters

Table: Material Properties 06 - Damping Parameters

Material	ModalRatio	VisMass	VisStiff	HysMass	HysStiff
		1/Sec	Sec	1/Sec2	
A615Gr60	0.	0.	0.	0.	0.
A992Fy50	0.	0.	0.	0.	0.
HA30	0.	0.	0.	0.	0.







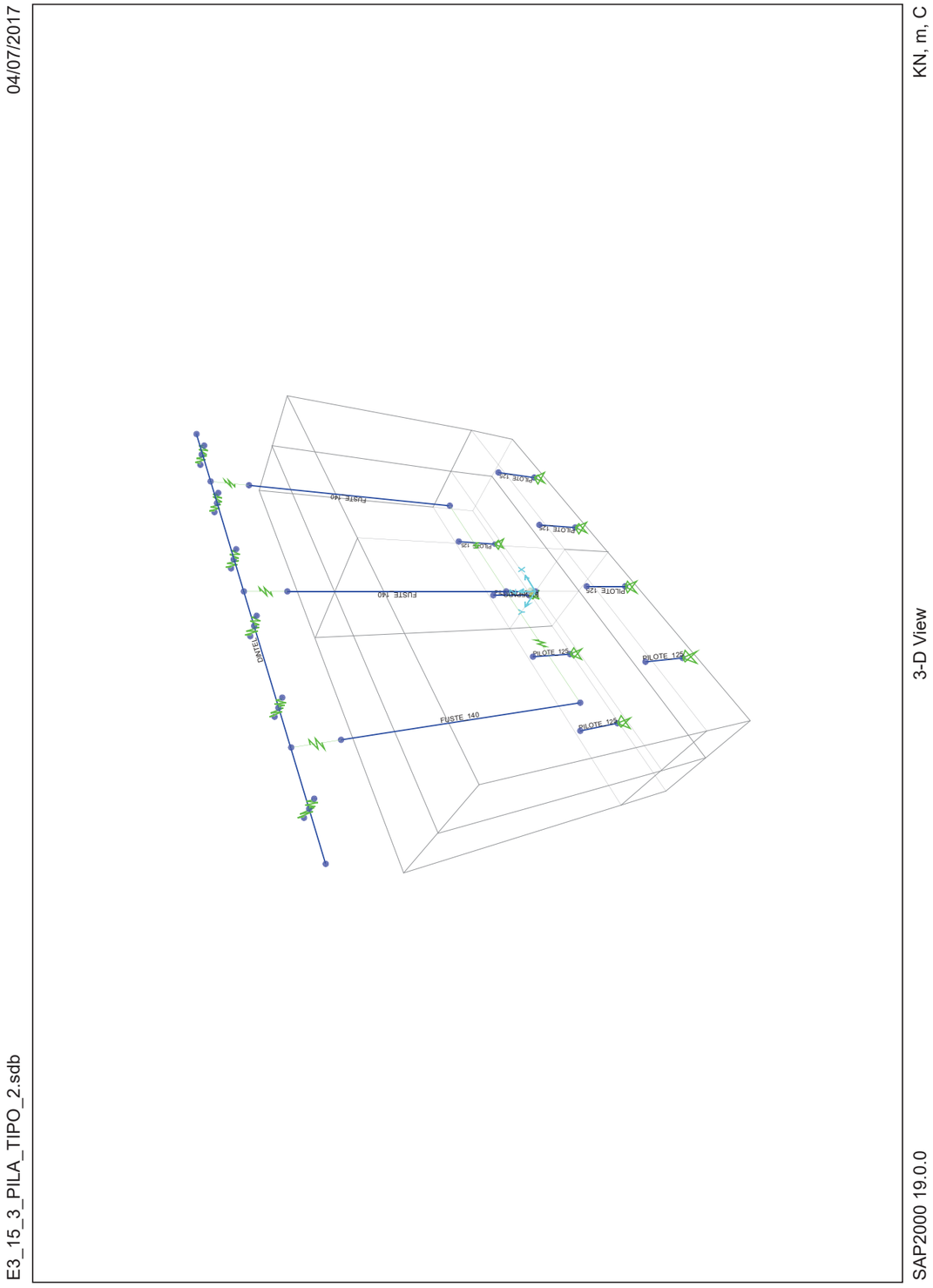


Table: Case - Modal 1 - General

Table: Case - Modal 1 - General

Case	ModeType	MaxNumModes	MinNumModes	EigenShift	EigenCutoff	EigenTol	AutoShift
				Cyc/sec	Cyc/sec		
MODAL	Eigen	12	1	0.0000E+00	0.0000E+00	1.0000E-09	Yes

Table: Case - Static 1 - Load Assignments

Table: Case - Static 1 - Load Assignments

Case	LoadType	LoadName	LoadSF
DEAD	Load pattern	DEAD	1.
PP_TABLERO	Load pattern	PP_TABLERO	1.
CPERM_TABLERO	Load pattern	CPERM_TABLERO	1.
SC_DIST	Load pattern	SC_DIST	1.
CARROS	Load pattern	CARROS	1.
RETYFLU	Load pattern	RETYFLU	1.
FRENADO	Load pattern	FRENADO	1.
SISMO_X	Load pattern	SISMO_X	1.
VIENTO	Load pattern	VIENTO	1.
SISMO_Y	Load pattern	SISMO_Y	1.
TEMP_UNIF	Load pattern	TEMP_UNIF	1.

Table: Connectivity - Frame, Part 1 of 2

Table: Connectivity - Frame, Part 1 of 2

Frame	JointI	JointJ	IsCurved	Length	CentroidX	CentroidY	CentroidZ
				m	m	m	m
1	1	2	No	1.75	0.	0.	0.875
2	2	3	No	9.86	0.	0.	6.68
3	4	5	No	9.86	-5.97	0.	6.68
4	6	7	No	9.86	5.97	0.	6.68
5	11	12	No	18.42	0.	0.	13.11
PILOTE_1	20	26	No	2.4	-5.97	-2.25	-1.2
PILOTE_2	19	25	No	2.4	-1.99	-2.25	-1.2
PILOTE_3	14	34	No	2.4	1.99	-2.25	-1.2
PILOTE_4	21	27	No	2.4	5.97	-2.25	-1.2
PILOTE_5	17	23	No	2.4	-5.97	2.25	-1.2
PILOTE_6	16	22	No	2.4	-1.99	2.25	-1.2
PILOTE_7	13	15	No	2.4	1.99	2.25	-1.2
PILOTE_8	18	24	No	2.4	5.97	2.25	-1.2

Table: Connectivity - Frame, Part 2 of 2

Table: Connectivity - Frame, Part 2 of 2

Frame	GUID
1	365daef1-a597-4fa5-9ed8-260b50cdeb4f
2	0cf988c8-3726-4760-b88a-917ea1c408c5

Table: Connectivity - Frame, Part 2 of 2

Frame	GUID
3	983ca876-e58b-433d-83cf-1711d4153af4
4	3716dced-653f-4715-9ed6-7e0553eddc60
5	6f3fc71c-31be-44a1-9368-fe39256ace78
PILOTE_1	2ffc71c8-a7cd-4848-96b7-1a510636d332
PILOTE_2	5084e949-0886-47db-83d8-5c3f0471fe63
PILOTE_3	fa15968b-2d08-4c53-9989-3d20432647c9
PILOTE_4	416e71c3-fffe-4b51-a2ae-47fe5cc87d10
PILOTE_5	ce67d241-102b-4aee-9605-b52c6de040cc
PILOTE_6	bb973cf7-6917-4d95-a8c9-4d5f1164b684
PILOTE_7	9f9ffe78-526c-4531-9af2-26308db282e5
PILOTE_8	8f439c59-b79c-4962-9392-1455f4e978e0

Table: Connectivity - Link, Part 1 of 2

Table: Connectivity - Link, Part 1 of 2

Link	JointI	JointJ	Length	CentroidX	CentroidY	CentroidZ
			m	m	m	m
1	5	9	1.5	-5.97	0.	12.36
2	3	8	1.5	0.	0.	12.36
3	7	10	1.5	5.97	0.	12.36
4	30	AP_02	0.46	-7.75	0.23	13.11
5	30	AP_01	0.46	-7.75	-0.23	13.11
6	29	AP_04	0.46	-4.65	0.23	13.11
7	29	AP_03	0.46	-4.65	-0.23	13.11
8	28	AP_06	0.46	-1.55	0.23	13.11
9	28	AP_05	0.46	-1.55	-0.23	13.11
10	31	AP_08	0.46	1.55	0.23	13.11
11	31	AP_07	0.46	1.55	-0.23	13.11
12	32	AP_10	0.46	4.65	0.23	13.11
13	32	AP_09	0.46	4.65	-0.23	13.11
14	33	AP_12	0.46	7.75	0.23	13.11
15	33	AP_11	0.46	7.75	-0.23	13.11
16	4	2	5.97	-2.985	0.	1.75
17	6	2	5.97	2.985	0.	1.75

Table: Connectivity - Link, Part 2 of 2

Table: Connectivity - Link, Part 2 of 2

Link	GUID
1	a344685e-d71a-4200-a446-4443b601e063
2	a344685e-d71a-4200-a446-4443b601e063

Table: Connectivity - Link, Part 2 of 2

Link	GUID
3	a344685e-d71a-4200-a446-4443b601e063
4	a344685e-d71a-4200-a446-4443b601e063
5	a344685e-d71a-4200-a446-4443b601e063
6	a344685e-d71a-4200-a446-4443b601e063
7	a344685e-d71a-4200-a446-4443b601e063
8	a344685e-d71a-4200-a446-4443b601e063
9	a344685e-d71a-4200-a446-4443b601e063
10	a344685e-d71a-4200-a446-4443b601e063
11	a344685e-d71a-4200-a446-4443b601e063
12	a344685e-d71a-4200-a446-4443b601e063
13	a344685e-d71a-4200-a446-4443b601e063
14	a344685e-d71a-4200-a446-4443b601e063
15	a344685e-d71a-4200-a446-4443b601e063
16	a344685e-d71a-4200-a446-4443b601e063
17	a344685e-d71a-4200-a446-4443b601e063

Table: Frame Auto Mesh Assignments

Table: Frame Auto Mesh Assignments

Frame	AutoMesh	AtJoints	AtFrames	NumSegments	MaxLength	MaxDegrees
					m	Degrees
1	Yes	Yes	No	0	1.	0.
2	Yes	Yes	No	0	1.	0.
3	Yes	Yes	No	0	1.	0.
4	Yes	Yes	No	0	1.	0.
5	Yes	Yes	No	0	1.	0.
PILOTE_1	Yes	Yes	No	0	1.	0.
PILOTE_2	Yes	Yes	No	0	1.	0.
PILOTE_3	Yes	Yes	No	0	1.	0.
PILOTE_4	Yes	Yes	No	0	1.	0.
PILOTE_5	Yes	Yes	No	0	1.	0.
PILOTE_6	Yes	Yes	No	0	1.	0.
PILOTE_7	Yes	Yes	No	0	1.	0.
PILOTE_8	Yes	Yes	No	0	1.	0.

Table: Frame Section Assignments

Table: Frame Section Assignments

Frame	SectionType	AutoSelect	AnalSect	DesignSect	MatProp
1	Rectangular	N.A.	ENCEPADO	ENCEPADO	Default
2	Circular	N.A.	FUSTE_140	FUSTE_140	Default
3	Circular	N.A.	FUSTE_140	FUSTE_140	Default
4	Circular	N.A.	FUSTE_140	FUSTE_140	Default
5	Rectangular	N.A.	DINTEL	DINTEL	Default
PILOTE_1	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_2	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_3	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_4	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_5	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_6	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_7	Circular	N.A.	PILOTE_125	PILOTE_125	Default
PILOTE_8	Circular	N.A.	PILOTE_125	PILOTE_125	Default

Table: Frame Section Properties 01 - General, Part 1 of 6

Table: Frame Section Properties 01 - General, Part 1 of 6

SectionName	Material	Shape	t3	t2	Area	TorsConst
			m	m	m2	m4
DINTEL	HA30	Rectangular	1.5	2.1	3.15	1.322437
ENCEPADO	HA30	Rectangular	14.2	6.55	93.01	945.047555
FUSTE_140	HA30	Circle	1.4		1.53938	0.377148
PILOTE_125	HA30	Circle	1.25		1.227185	0.239684

Table: Frame Section Properties 01 - General, Part 2 of 6

Table: Frame Section Properties 01 - General, Part 2 of 6

SectionName	I33	I22	I23	AS2	AS3	S33	S22
	m4	m4	m4	m2	m2	m3	m3
DINTEL	0.590625	1.157625	0.	2.625	2.625	0.7875	1.1025
ENCEPADO	1562.878033	332.530127	0.	77.508333	77.508333	220.123667	101.535917
FUSTE_140	0.188574	0.188574	0.	1.385442	1.385442	0.269392	0.269392
PILOTE_125	0.119842	0.119842	0.	1.104466	1.104466	0.191748	0.191748

Table: Frame Section Properties 01 - General, Part 3 of 6

Table: Frame Section Properties 01 - General, Part 3 of 6

SectionName	Z33	Z22	R33	R22	ConcCol	ConcBeam	Color
	m3	m3	m	m			
DINTEL	1.18125	1.65375	0.433013	0.606218	Yes	No	Magenta
ENCEPADO	330.1855	152.303875	4.099187	1.890822	Yes	No	Red
FUSTE_140	0.457333	0.457333	0.35	0.35	Yes	No	Gray8Dark
PILOTE_125	0.325521	0.325521	0.3125	0.3125	Yes	No	Green

Table: Frame Section Properties 01 - General, Part 4 of 6

Table: Frame Section Properties 01 - General, Part 4 of 6

SectionName	TotalWt	TotalMass	FromFile	AMod	A2Mod	A3Mod	JMod
	KN	KN-s2/m					
DINTEL	1450.575	147.92	No	1.	1.	1.	1.
ENCEPADO	4069.188	414.94	No	1.	1.	1.	1.
FUSTE_140	1138.372	116.08	No	1.	1.	1.	1.
PILOTE_125	589.049	60.07	No	1.	1.	1.	1.

Table: Frame Section Properties 01 - General, Part 5 of 6

Table: Frame Section Properties 01 - General, Part 5 of 6

SectionName	I2Mod	I3Mod	MMod	WMod	GUID
DINTEL	1.	1.	1.	1.	
ENCEPADO	1.	1.	1.	1.	
FUSTE_140	1.	1.	1.	1.	
PILOTE_125	1.	1.	1.	1.	

Table: Frame Section Properties 01 - General, Part 6 of 6

Table: Frame Section Properties 01 - General, Part 6 of 6

SectionName	Notes
DINTEL	Added 20/06/2017 16:50:47
ENCEPADO	Added 20/06/2017 16:52:17
FUSTE_140	Added 20/06/2017 16:51:32
PILOTE_125	Added 20/06/2017 16:51:58

Table: Frame Section Properties 02 - Concrete Column, Part 1 of 2

Table: Frame Section Properties 02 - Concrete Column, Part 1 of 2

SectionName	RebarMatL	RebarMatC	ReinfConfig	LatReinf	Cover	NumBars3Dir	NumBars2Dir	NumBarsCirc
					m			
DINTEL	A615Gr60	A615Gr60	Rectangular	Ties	0.04	3	3	
ENCEPADO	A615Gr60	A615Gr60	Rectangular	Ties	0.04	3	3	
FUSTE_140	A615Gr60	A615Gr60	Circular	Ties	0.04			8
PILOTE_125	A615Gr60	A615Gr60	Circular	Ties	0.04			8

Table: Frame Section Properties 02 - Concrete Column, Part 2 of 2

Table: Frame Section Properties 02 - Concrete Column, Part 2 of 2

SectionName	BarSizeL	BarSizeC	SpacingC	NumCBars2	NumCBars3	ReinfType
			m			
DINTEL	#9	#4	0.15	3	3	Design
ENCEPADO	#9	#4	0.15	3	3	Design
FUSTE_140	#9	#4	0.15			Design
PILOTE_125	#9	#4	0.15			Design

Table: Function - Response Spectrum - User

Table: Function - Response Spectrum - User

Name	Period	Accel	FuncDamp
	Sec		
UNIFRS	0.	1.	0.05
UNIFRS	1.	1.	

Table: Joint Constraint Assignments

Table: Joint Constraint Assignments

Joint	Constraint	Type
1	ENCEPADO	Body
16	ENCEPADO	Body
17	ENCEPADO	Body
18	ENCEPADO	Body
19	ENCEPADO	Body
20	ENCEPADO	Body
21	ENCEPADO	Body
13	ENCEPADO	Body
14	ENCEPADO	Body

Table: Joint Coordinates, Part 1 of 2

Table: Joint Coordinates, Part 1 of 2

Joint	CoordSys	CoordType	XorR	Y	Z	SpecialJt	GlobalX
			m	m	m		m
1	GLOBAL	Cartesian	0.	0.	0.	Yes	0.
2	GLOBAL	Cartesian	0.	0.	1.75	Yes	0.
3	GLOBAL	Cartesian	0.	0.	11.61	Yes	0.
4	GLOBAL	Cartesian	-5.97	0.	1.75	No	-5.97
5	GLOBAL	Cartesian	-5.97	0.	11.61	No	-5.97
6	GLOBAL	Cartesian	5.97	0.	1.75	No	5.97
7	GLOBAL	Cartesian	5.97	0.	11.61	No	5.97
8	GLOBAL	Cartesian	0.	0.	13.11	Yes	0.
9	GLOBAL	Cartesian	-5.97	0.	13.11	Yes	-5.97
10	GLOBAL	Cartesian	5.97	0.	13.11	Yes	5.97
11	GLOBAL	Cartesian	-9.21	0.	13.11	Yes	-9.21
12	GLOBAL	Cartesian	9.21	0.	13.11	Yes	9.21
13	GLOBAL	Cartesian	1.99	2.25	0.	Yes	1.99
14	GLOBAL	Cartesian	1.99	-2.25	0.	Yes	1.99
15	GLOBAL	Cartesian	1.99	2.25	-2.4	Yes	1.99
16	GLOBAL	Cartesian	-1.99	2.25	0.	Yes	-1.99
17	GLOBAL	Cartesian	-5.97	2.25	0.	Yes	-5.97
18	GLOBAL	Cartesian	5.97	2.25	0.	Yes	5.97
19	GLOBAL	Cartesian	-1.99	-2.25	0.	Yes	-1.99
20	GLOBAL	Cartesian	-5.97	-2.25	0.	Yes	-5.97
21	GLOBAL	Cartesian	5.97	-2.25	0.	Yes	5.97
22	GLOBAL	Cartesian	-1.99	2.25	-2.4	Yes	-1.99
23	GLOBAL	Cartesian	-5.97	2.25	-2.4	Yes	-5.97
24	GLOBAL	Cartesian	5.97	2.25	-2.4	Yes	5.97
25	GLOBAL	Cartesian	-1.99	-2.25	-2.4	Yes	-1.99
26	GLOBAL	Cartesian	-5.97	-2.25	-2.4	Yes	-5.97
27	GLOBAL	Cartesian	5.97	-2.25	-2.4	Yes	5.97
28	GLOBAL	Cartesian	-1.55	0.	13.11	Yes	-1.55

Table: Joint Coordinates, Part 1 of 2

Joint	CoordSys	CoordType	XorR	Y	Z	SpecialJt	GlobalX
			m	m	m		m
29	GLOBAL	Cartesian	-4.65	0.	13.11	Yes	-4.65
30	GLOBAL	Cartesian	-7.75	0.	13.11	Yes	-7.75
31	GLOBAL	Cartesian	1.55	0.	13.11	Yes	1.55
32	GLOBAL	Cartesian	4.65	0.	13.11	Yes	4.65
33	GLOBAL	Cartesian	7.75	0.	13.11	Yes	7.75
34	GLOBAL	Cartesian	1.99	-2.25	-2.4	Yes	1.99
AP_01	GLOBAL	Cartesian	-7.75	-0.46	13.11	Yes	-7.75
AP_02	GLOBAL	Cartesian	-7.75	0.46	13.11	Yes	-7.75
AP_03	GLOBAL	Cartesian	-4.65	-0.46	13.11	Yes	-4.65
AP_04	GLOBAL	Cartesian	-4.65	0.46	13.11	Yes	-4.65
AP_05	GLOBAL	Cartesian	-1.55	-0.46	13.11	Yes	-1.55
AP_06	GLOBAL	Cartesian	-1.55	0.46	13.11	Yes	-1.55
AP_07	GLOBAL	Cartesian	1.55	-0.46	13.11	Yes	1.55
AP_08	GLOBAL	Cartesian	1.55	0.46	13.11	Yes	1.55
AP_09	GLOBAL	Cartesian	4.65	-0.46	13.11	Yes	4.65
AP_10	GLOBAL	Cartesian	4.65	0.46	13.11	Yes	4.65
AP_11	GLOBAL	Cartesian	7.75	-0.46	13.11	Yes	7.75
AP_12	GLOBAL	Cartesian	7.75	0.46	13.11	Yes	7.75

Table: Joint Coordinates, Part 2 of 2

Table: Joint Coordinates, Part 2 of 2

Joint	GlobalY	GlobalZ	GUID
	m	m	
1	0.	0.	420e3828-b35a-4d04-afe7-c965b759256a
2	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
3	0.	11.61	420e3828-b35a-4d04-afe7-c965b759256a
4	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
5	0.	11.61	420e3828-b35a-4d04-afe7-c965b759256a
6	0.	1.75	420e3828-b35a-4d04-afe7-c965b759256a
7	0.	11.61	420e3828-b35a-4d04-afe7-c965b759256a
8	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
9	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
10	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
11	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
12	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
13	2.25	0.	fe4bbd8f-68d7-4845-bf16-9e7a3846d045
14	-2.25	0.	fe4bbd8f-68d7-4845-bf16-9e7a3846d045
15	2.25	-2.4	fe4bbd8f-68d7-4845-bf16-9e7a3846d045
16	2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a

Table: Joint Coordinates, Part 2 of 2

Joint	GlobalY	GlobalZ	GUID
	m	m	
17	2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a
18	2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a
19	-2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a
20	-2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a
21	-2.25	0.	420e3828-b35a-4d04-afe7-c965b759256a
22	2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
23	2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
24	2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
25	-2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
26	-2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
27	-2.25	-2.4	420e3828-b35a-4d04-afe7-c965b759256a
28	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
29	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
30	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
31	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
32	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
33	0.	13.11	420e3828-b35a-4d04-afe7-c965b759256a
34	-2.25	-2.4	fe4bbd8f-68d7-4845-bf16-9e7a3846d045
AP_01	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_02	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_03	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_04	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_05	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_06	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_07	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_08	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_09	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_10	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a
AP_11	-0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a

Table: Joint Coordinates, Part 2 of 2

Joint	GlobalY	GlobalZ	GUID
	m	m	
AP_12	0.46	13.11	420e3828-b35a-4d04-afe7-c965b759256a

Table: Joint Loads - Force, Part 1 of 2

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
2	DEAD	GLOBAL	0.	0.	-837.09	0.	0.
AP_06	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_06	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_06	SC_DIST	GLOBAL	0.	0.	-75.604	0.	0.
AP_06	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_06	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_06	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_06	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_06	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_06	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_04	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_04	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_04	SC_DIST	GLOBAL	0.	0.	-325.087	0.	0.
AP_04	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_04	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_04	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_04	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_04	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_04	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_02	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_02	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_02	SC_DIST	GLOBAL	0.	0.	-148.453	0.	0.
AP_02	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_02	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_02	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_02	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_02	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_02	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_08	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_08	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_08	SC_DIST	GLOBAL	0.	0.	-111.144	0.	0.
AP_08	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_08	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_08	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_08	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_08	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_08	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_10	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_10	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_10	SC_DIST	GLOBAL	0.	0.	-118.498	0.	0.
AP_10	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_10	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_10	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_10	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_10	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_10	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
AP_12	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_12	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_12	SC_DIST	GLOBAL	0.	0.	-38.714	0.	0.
AP_12	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_12	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_12	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_12	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_12	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_12	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_05	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_05	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_05	SC_DIST	GLOBAL	0.	0.	-75.604	0.	0.
AP_05	CARROS	GLOBAL	0.	0.	-238.2	0.	0.
AP_05	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_05	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_05	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_05	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_05	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_05	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_03	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_03	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_03	SC_DIST	GLOBAL	0.	0.	-325.087	0.	0.
AP_03	CARROS	GLOBAL	0.	0.	-567.018	0.	0.
AP_03	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_03	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_03	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_03	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_03	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_03	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_01	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_01	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_01	SC_DIST	GLOBAL	0.	0.	-148.453	0.	0.
AP_01	CARROS	GLOBAL	0.	0.	-219.544	0.	0.
AP_01	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_01	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_01	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_01	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_01	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_01	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_07	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_07	CPERM_TABLERO	GLOBAL	0.	0.	-145.782	0.	0.
AP_07	SC_DIST	GLOBAL	0.	0.	-111.144	0.	0.
AP_07	CARROS	GLOBAL	0.	0.	-148.569	0.	0.
AP_07	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_07	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_07	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_07	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_07	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_07	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_09	PP_TABLERO	GLOBAL	0.	0.	-485.6	0.	0.
AP_09	CPERM_TABLERO	GLOBAL	0.	0.	-152.988	0.	0.
AP_09	SC_DIST	GLOBAL	0.	0.	-118.498	0.	0.
AP_09	CARROS	GLOBAL	0.	0.	-30.918	0.	0.
AP_09	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.

Table: Joint Loads - Force, Part 1 of 2

Joint	LoadPat	CoordSys	F1	F2	F3	M1	M2
			KN	KN	KN	KN-m	KN-m
AP_09	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_09	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_09	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_09	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_09	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.
AP_11	PP_TABLERO	GLOBAL	0.	0.	-404.3	0.	0.
AP_11	CPERM_TABLERO	GLOBAL	0.	0.	-168.48	0.	0.
AP_11	SC_DIST	GLOBAL	0.	0.	-38.714	0.	0.
AP_11	CARROS	GLOBAL	0.	0.	0.	0.	0.
AP_11	FRENADO	GLOBAL	-15.59	-36.26	0.	0.	0.
AP_11	RETYFLU	GLOBAL	-15.8	-36.13	0.	0.	0.
AP_11	TEMP_UNIF	GLOBAL	-3.9	-8.92	0.	0.	0.
AP_11	VIENTO	GLOBAL	-20.6	-9.24	0.	0.	0.
AP_11	SISMO_X	GLOBAL	-67.96	-186.97	0.	0.	0.
AP_11	SISMO_Y	GLOBAL	-182.78	-83.59	0.	0.	0.

Table: Joint Loads - Force, Part 2 of 2

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
2	DEAD	0.	0e0f26da-805d-4a61-b292-4fb3a200a73f
AP_06	PP_TABLERO	0.	c5af0a77-38f6-4737-b94e-4dfba1b1f628
AP_06	CPERM_TABLERO	0.	b103467f-c312-4539-817a-32a8fad7918c
AP_06	SC_DIST	0.	d316f0c7-4a75-45b9-9604-c06c94d2a55e
AP_06	FRENADO	0.	d541a7ca-a4f6-4f22-98c4-f9beaf3d6778
AP_06	RETYFLU	0.	88ac2373-caf5-4acc-9de8-cc7abe66ee93
AP_06	TEMP_UNIF	0.	be875132-dca1-429a-be6e-b76d8d9d4c58
AP_06	VIENTO	0.	e197587b-2ab8-4c03-8f1c-073ad01f7811
AP_06	SISMO_X	0.	d0963773-a596-4f40-8dd1-c1cf6bbd4d26
AP_06	SISMO_Y	0.	b20801a2-4119-4f5e-a461-0be2172577d5
AP_04	PP_TABLERO	0.	dc1c17f2-7147-45b4-ad61-4b34ec37d8f0
AP_04	CPERM_TABLERO	0.	0e3cf56b-709d-4bab-8431-1e3eedf4138f
AP_04	SC_DIST	0.	06c1204e-2e1f-4155-80fe-bf9a2e258bf0
AP_04	FRENADO	0.	645f20de-1162-4636-9bf8-049de5976969
AP_04	RETYFLU	0.	fa5a5064-eee5-4533-903a-9dc823c7780e
AP_04	TEMP_UNIF	0.	6b102a0a-20d3-4b5b-9356-322de0bc4364
AP_04	VIENTO	0.	306d2c40-0d86-48f6-8bb1-3cd8cf71e833
AP_04	SISMO_X	0.	a2b8769e-d817-4e83-8544-67900ac67e95

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_04	SISMO_Y	0.	81e8afb7-53ab-43db-9bf0-bcbc67731212
AP_02	PP_TABLERO	0.	d7ffbb96-c53b-4537-8110-153749f8d4fb
AP_02	CPERM_TABLERO	0.	b35c181a-4106-4c84-a7b5-7472b3b0783a
AP_02	SC_DIST	0.	38e59bb4-6086-407c-997f-7f8a143cc20a
AP_02	FRENADO	0.	a9f3a89e-e825-4e23-a3e9-a91fdb2e59f0
AP_02	RETYFLU	0.	a1b3a273-97cd-4c0d-bf25-141ca6b82009
AP_02	TEMP_UNIF	0.	db327d0b-a2d6-4833-b907-554e71afe465
AP_02	VIENTO	0.	5c853f69-c754-4139-a346-a1576360e39f
AP_02	SISMO_X	0.	d0ea6a44-d6ba-439d-b3e8-2573acda1ef9
AP_02	SISMO_Y	0.	659fa843-d0e9-4d31-9f2e-aa943ae9fd99
AP_08	PP_TABLERO	0.	f00e7bb6-46a1-4ca9-ab41-3805b1724fd3
AP_08	CPERM_TABLERO	0.	38703a04-d180-4fb5-945e-e9130e5d528a
AP_08	SC_DIST	0.	42cdadc9-17ca-4575-858f-747d0087f55f
AP_08	FRENADO	0.	862576ad-e5d5-441d-af6c-89c52514a7ae
AP_08	RETYFLU	0.	2299f0a8-3856-432a-a83e-661c345fbd52
AP_08	TEMP_UNIF	0.	0412bfb5-a3f5-4e5c-b2b3-5195baf240f8
AP_08	VIENTO	0.	755817c0-ec55-4a69-8c30-984e0ce5f97d
AP_08	SISMO_X	0.	ce56a27f-5bdd-458f-a666-764e79dc9e4d
AP_08	SISMO_Y	0.	6ef742e6-e61c-4c5e-aef1-05ca6c4ae243
AP_10	PP_TABLERO	0.	76eb3885-1e10-44a8-93fc-bf0869681a65
AP_10	CPERM_TABLERO	0.	270af874-6681-41e3-82b3-65f8e3f25ac8
AP_10	SC_DIST	0.	3bfba561-1992-4b1f-9366-e6d1b3be2dde
AP_10	FRENADO	0.	af5aea9b-da0f-4e43-a3c3-8f97e0ec9add
AP_10	RETYFLU	0.	47cb3dde-7105-49d5-b179-86b988fb8321
AP_10	TEMP_UNIF	0.	73bbbb9c-e399-42cb-ac5d-136e74fecd61
AP_10	VIENTO	0.	4c4e7ee9-e75d-4ec7-9f96-9eddf65afdf4
AP_10	SISMO_X	0.	2c4cab18-f425-4549-b72d-218b97de5aad
AP_10	SISMO_Y	0.	aaebf210-c270-4593-a7e5-809deee86ea4
AP_12	PP_TABLERO	0.	e8e29633-8a0c-4135-8f78-de8209b97325
AP_12	CPERM_TABLERO	0.	63bf50cd-5d36-4375-9cd0-a495fddb5f1f

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3	GUID
		KN-m	
AP_12	SC_DIST	0.	608cda84-8ec4-4940-85d3-ca25309784f9
AP_12	FRENADO	0.	ab5dea2a-9412-4bf4-a5c6-9441c5ee0e3c
AP_12	RETYFLU	0.	e5a6eb2c-4336-4d78-9881-90f8b7eaf3d6
AP_12	TEMP_UNIF	0.	2da44388-2e3c-4d6a-9b8e-2da3ff6d1789
AP_12	VIENTO	0.	898bf378-5417-4918-aaea-796ceee2b338
AP_12	SISMO_X	0.	1e2b61af-b0bd-4c32-aa33-d4dd5d61d5e1
AP_12	SISMO_Y	0.	ac015d37-63f2-4714-8ed4-ed7bd92db545
AP_05	PP_TABLERO	0.	5b256a81-0727-4240-8656-c02cd2965edc
AP_05	CPERM_TABLERO	0.	eee07d6d-6c88-4281-8e18-205928eda906
AP_05	SC_DIST	0.	1b4cd54d-3132-4a58-b8ba-86dccb41dc37
AP_05	CARROS	0.	d2d3a914-4097-4db7-8947-0521630e546b
AP_05	FRENADO	0.	9bf01eb5-ecd7-44f7-a6c9-e62ce81cef93
AP_05	RETYFLU	0.	bfd77e18-9419-4168-ba7c-5016840628c4
AP_05	TEMP_UNIF	0.	fd93ac31-ba05-4c19-895f-ad34b6fa4658
AP_05	VIENTO	0.	fd672b0e-b448-45c5-b94f-e54079d2d739
AP_05	SISMO_X	0.	39a40cbd-94d6-4233-a5fc-612da10270df
AP_05	SISMO_Y	0.	a262acff-a9c9-4d87-8e26-1346425c4b5b
AP_03	PP_TABLERO	0.	4303bf51-db43-4929-97b8-cbd2a207bfd8
AP_03	CPERM_TABLERO	0.	f3c3445f-71a3-49bc-aecf-977f57462d73
AP_03	SC_DIST	0.	d6580775-c428-4c9c-9396-8f6b954a19c4
AP_03	CARROS	0.	7afa6ea2-80a5-4c4c-98bd-a988a2333de9
AP_03	FRENADO	0.	082d4803-74c3-49d3-bc8b-cf5d00ba19cc
AP_03	RETYFLU	0.	81413689-1466-45e6-be47-34e7638bb147
AP_03	TEMP_UNIF	0.	3a078e16-f34e-4771-a0b7-ef922a74f2d2
AP_03	VIENTO	0.	52198189-598c-488a-b671-d98cad235e2f
AP_03	SISMO_X	0.	1aaaaac1-def4-49e5-bab4-3fbab761ddc9
AP_03	SISMO_Y	0.	460ef773-718c-4c63-aa6d-b7827fac54cb
AP_01	PP_TABLERO	0.	60679f8f-4406-4c95-b5e2-c979f615cd06
AP_01	CPERM_TABLERO	0.	58cdf405-8de2-4eda-90d5-cfe949dba0a4
AP_01	SC_DIST	0.	c8555605-c8f1-435f-b067-53cab7f83a06

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3 KN-m	GUID
AP_01	CARROS	0.	bef0dd79-24c7-44a4-8dad-790a23b4d143
AP_01	FRENADO	0.	065e7041-1446-4370-aa52-1a60dcb1a1fa
AP_01	RETYFLU	0.	42795b7a-8b4e-46af-b45f-b66353d87acf
AP_01	TEMP_UNIF	0.	c941a7bb-2669-494b-99da-1ff32e5cea5d
AP_01	VIENTO	0.	3710b385-0a70-4461-af2b-4b3ba7c8d609
AP_01	SISMO_X	0.	692bce74-2321-479e-bf10-d0cf45842961
AP_01	SISMO_Y	0.	f352b0de-7e93-43f1-80db-22378b4467eb
AP_07	PP_TABLERO	0.	49d76726-6467-4561-b145-d258b0d744bf
AP_07	CPERM_TABLERO	0.	028ca3b7-a93f-4cb4-96b6-c8b76cf110a0
AP_07	SC_DIST	0.	f65b85a8-a28b-442d-b5a2-1807f8504b30
AP_07	CARROS	0.	bf3a0287-aca5-4c1f-a0f1-7ceacdb5ebeb
AP_07	FRENADO	0.	55e88195-7407-4572-acd7-7d540f0c105d
AP_07	RETYFLU	0.	8cfabc6f-86a9-4189-8d2b-60bbd62141aa
AP_07	TEMP_UNIF	0.	9d51ee00-8b2e-4de5-aedb-b3862dd1324c
AP_07	VIENTO	0.	483ce4c3-3b14-46f7-a67e-a8104f139907
AP_07	SISMO_X	0.	59441883-0389-47dd-a53a-1a6f3777f43e
AP_07	SISMO_Y	0.	d826da76-b57c-4ef0-9ec3-0d4b2aa3343c
AP_09	PP_TABLERO	0.	fc4910e9-7b6e-4835-ad8e-c764fa195105
AP_09	CPERM_TABLERO	0.	746fb88a-6010-4376-803a-8cae2e3de2c5
AP_09	SC_DIST	0.	aa90e646-328e-48b7-a871-338ffcba723d
AP_09	CARROS	0.	f9f77940-3128-4180-9e3c-4a47a71799b5
AP_09	FRENADO	0.	e04d8411-ec33-4caa-b51e-06eab8639f60
AP_09	RETYFLU	0.	e74baae7-170a-4761-8db6-7b939d8be1eb
AP_09	TEMP_UNIF	0.	ec09005f-bb75-48bb-8ceb-cbff336b9cc1
AP_09	VIENTO	0.	378de8ac-600e-4adf-a40b-75e2305fe67a
AP_09	SISMO_X	0.	be197aef-960b-4ecd-be31-6cb552530c59
AP_09	SISMO_Y	0.	59523c64-adc8-4e43-984a-7b8e7da5fe5b
AP_11	PP_TABLERO	0.	96407d75-dd6e-46c3-bd01-f5b410b9a1ee
AP_11	CPERM_TABLERO	0.	cd2a5a4e-a14b-49fb-9254-a387cee8a7db
AP_11	SC_DIST	0.	ac93668f-87ae-400d-9d3e-57fd780c9b72

Table: Joint Loads - Force, Part 2 of 2

Joint	LoadPat	M3 KN-m	GUID
AP_11	CARROS	0.	0888c9e6-1333-4576-ac9d-22dd63112941
AP_11	FRENADO	0.	3709adcf-3dfd-4dfd-9372-5f7ba9ec89be
AP_11	RETYFLU	0.	8e456d53-84a0-43db-b114-74c16d783c54
AP_11	TEMP_UNIF	0.	4d3161ab-9609-4045-80a6-3f82bfa050db
AP_11	VIENTO	0.	e124c8bc-60c8-4af6-a967-f5b9c6231390
AP_11	SISMO_X	0.	0455c8cf-6209-4437-8a31-75810a608641
AP_11	SISMO_Y	0.	7156e985-66ee-49fb-811b-ddb1b91cd498

Table: Joint Restraint Assignments

Table: Joint Restraint Assignments

Joint	U1	U2	U3	R1	R2	R3
15	Yes	Yes	Yes	No	No	No
22	Yes	Yes	Yes	No	No	No
23	Yes	Yes	Yes	No	No	No
24	Yes	Yes	Yes	No	No	No
25	Yes	Yes	Yes	No	No	No
26	Yes	Yes	Yes	No	No	No
27	Yes	Yes	Yes	No	No	No
34	Yes	Yes	Yes	No	No	No

Table: Link Property Assignments

Table: Link Property Assignments

Link	LinkType	LinkJoints	LinkProp	LinkFDProp	PropMod
1	Linear	TwoJoint	INFRIG	None	1.
2	Linear	TwoJoint	INFRIG	None	1.
3	Linear	TwoJoint	INFRIG	None	1.
4	Linear	TwoJoint	INFRIG	None	1.
5	Linear	TwoJoint	INFRIG	None	1.
6	Linear	TwoJoint	INFRIG	None	1.
7	Linear	TwoJoint	INFRIG	None	1.
8	Linear	TwoJoint	INFRIG	None	1.
9	Linear	TwoJoint	INFRIG	None	1.
10	Linear	TwoJoint	INFRIG	None	1.
11	Linear	TwoJoint	INFRIG	None	1.
12	Linear	TwoJoint	INFRIG	None	1.
13	Linear	TwoJoint	INFRIG	None	1.
14	Linear	TwoJoint	INFRIG	None	1.
15	Linear	TwoJoint	INFRIG	None	1.
16	Linear	TwoJoint	INFRIG	None	1.
17	Linear	TwoJoint	INFRIG	None	1.

Table: Link Property Definitions 01 - General, Part 1 of 3

Table: Link Property Definitions 01 - General, Part 1 of 3

Link	LinkType	Mass	Weight	RotInert1	RotInert2	RotInert3	DefLength
		KN-s2/m	KN	KN-m-s2	KN-m-s2	KN-m-s2	m
INFRIG	Linear	0.	0.	0.	0.	0.	1.

Table: Link Property Definitions 01 - General, Part 2 of 3

Table: Link Property Definitions 01 - General, Part 2 of 3

Link	DefArea	PDM2I	PDM2J	PDM3I	PDM3J	Color
	m2					
INFRIG	1.	0.	0.	0.	0.	Magenta

Table: Link Property Definitions 01 - General, Part 3 of 3

Table: Link Property Definitions 01 - General, Part 3 of 3

Link	GUID	Notes
INFRIG		Added 20/06/2017 16:58:28

Table: Link Property Definitions 02 - Linear

Table: Link Property Definitions 02 - Linear

Link	DOF	Fixed
INFRIG	U1	Yes
INFRIG	U2	Yes
INFRIG	U3	Yes
INFRIG	R1	Yes
INFRIG	R2	Yes
INFRIG	R3	Yes

Table: Load Case Definitions, Part 1 of 3

Table: Load Case Definitions, Part 1 of 3

Case	Type	InitialCond	ModalCase	BaseCase	MassSource	DesTypeOpt	DesignType
DEAD	LinStatic	Zero				Prog Det	Dead
MODAL	LinModal	Zero				Prog Det	Other
PP_TABLERO	LinStatic	Zero				Prog Det	Dead
CPERM_TABLERO	LinStatic	Zero				Prog Det	Dead
SC_DIST	LinStatic	Zero				Prog Det	Dead
CARROS	LinStatic	Zero				Prog Det	Dead
RETYFLU	LinStatic	Zero				Prog Det	Dead
FRENADO	LinStatic	Zero				Prog Det	Dead
SISMO_X	LinStatic	Zero				Prog Det	Dead
VIENTO	LinStatic	Zero				Prog Det	Dead
SISMO_Y	LinStatic	Zero				Prog Det	Dead
TEMP_UNIF	LinStatic	Zero				Prog Det	Dead

Table: Load Case Definitions, Part 2 of 3

Table: Load Case Definitions, Part 2 of 3

Case	DesActOpt	DesignAct	AutoType	RunCase	CaseStatus	GUID
DEAD	Prog Det	Non-Composite	None	Yes	Finished	
MODAL	Prog Det	Other	None	Yes	Finished	
PP_TABLERO	Prog Det	Non-Composite	None	Yes	Finished	
CPERM_TABLERO	Prog Det	Non-Composite	None	Yes	Finished	
SC_DIST	Prog Det	Non-Composite	None	Yes	Finished	
CARROS	Prog Det	Non-Composite	None	Yes	Finished	
RETYFLU	Prog Det	Non-Composite	None	Yes	Finished	
FRENADO	Prog Det	Non-Composite	None	Yes	Finished	
SISMO_X	Prog Det	Non-Composite	None	Yes	Finished	
VIENTO	Prog Det	Non-Composite	None	Yes	Finished	
SISMO_Y	Prog Det	Non-Composite	None	Yes	Finished	
TEMP_UNIF	Prog Det	Non-Composite	None	Yes	Finished	

Table: Load Case Definitions, Part 3 of 3

Table: Load Case Definitions, Part 3 of 3

Case	Notes
DEAD	
MODAL	
PP_TABLERO	
CPERM_TABLERO	
SC_DIST	
CARROS	
RETYFLU	
FRENADO	
SISMO_X	
VIENTO	
SISMO_Y	
TEMP_UNIF	

Table: Load Pattern Definitions

Table: Load Pattern Definitions

LoadPat	DesignType	SelfWtMult	AutoLoad	GUID	Notes
DEAD	Dead	1.		ecd0fd5b-2d3d-4d5f-ac9b-94981adf879a	
PP_TABLERO	Dead	0.		f0cc05cc-801a-4174-836d-053ee05b6058	

Table: Load Pattern Definitions

LoadPat	DesignType	SelfWtMult	AutoLoad	GUID	Notes
CPERM_TABLERO	Dead	0.		a3896ddb-ecbe-4ca6-8580-88881c076065	
SC_DIST	Dead	0.		28c00056-e225-46a8-809b-e536eecbbe75	
CARROS	Dead	0.		50d33acb-b982-43ee-827d-18ec6508e310	
RETYFLU	Dead	0.		7e04c52a-9f85-47a5-abe7-c9c0e6d0f38d	
TEMP_UNIF	Dead	0.		6b2934f4-2464-4ebc-8688-3fb7a5c29a2d	
FRENADO	Dead	0.		599b91dc-0fcd-4479-84ee-38479a5ee3b9	
SISMO_X	Dead	0.		975bf963-a596-42c5-8735-f15ed334e04a	
VIENTO	Dead	0.		f621d03e-0c1a-406f-986e-f10cb56451a9	
SISMO_Y	Dead	0.		1d719ac0-1ee2-4d12-af44-f39906d35526	

Table: Mass Source

Table: Mass Source

MassSource	Elements	Masses	Loads	IsDefault
MSSSRC1	Yes	Yes	No	Yes

Table: Material Properties 01 - General, Part 1 of 2

Table: Material Properties 01 - General, Part 1 of 2

Material	Type	SymType	TempDependd	Color	GUID
A615Gr60	Rebar	Uniaxial	No	Red	
A992Fy50	Steel	Isotropic	No	Red	
HA30	Concrete	Isotropic	No	Magenta	

Table: Material Properties 01 - General, Part 2 of 2

Table: Material Properties 01 - General, Part 2 of 2

Material	Notes
A615Gr60	ASTM A615 Grade 60 20/06/2017 16:50:47
A992Fy50	ASTM A992 Grade 50 20/06/2017 16:47:23
HA30	Customary f'c 4000 psi 20/06/2017 16:47:23

Table: Material Properties 02 - Basic Mechanical Properties

Table: Material Properties 02 - Basic Mechanical Properties

Material	UnitWeight	UnitMass	E1	G12	U12	A1
	KN/m3	KN-s2/m4	KN/m2	KN/m2		1/C
A615Gr60	7.6973E+01	7.8490E+00	199947978.8			1.1700E-05
A992Fy50	7.6973E+01	7.8490E+00	199947978.8	76903068.77	0.3	1.1700E-05
HA30	2.5000E+01	2.5493E+00	28576790.96	11906996.23	0.2	1.0000E-05

Table: Material Properties 06 - Damping Parameters

Table: Material Properties 06 - Damping Parameters

Material	ModalRatio	VisMass	VisStiff	HysMass	HysStiff
		1/Sec	Sec	1/Sec2	
A615Gr60	0.	0.	0.	0.	0.
A992Fy50	0.	0.	0.	0.	0.
HA30	0.	0.	0.	0.	0.

PILAS 1 A 4. AXILES EN PILOTES Y COMPROBACIÓN GEOTÉCNICA

ESTRUCTURA E3. TABLERO ANCHO 15.3

	CARACT_01	CARACT_02	CARACT_03	CARACT_04	ELU_SIS_X	ELU_SIS_Y
PILOTE_1	-3993.99	-4094.89	-3679.74	-3722.03	-5762.97	-5570.27
PILOTE_2	-3472.38	-3606.34	-3282.13	-3283.27	-4862.12	-4182.94
PILOTE_3	-2950.77	-3117.79	-2884.51	-2844.50	-3961.27	-2795.61
PILOTE_4	-3054.36	-2459.99	-2693.27	-2733.28	-1206.45	-2372.11
PILOTE_5	-2532.75	-1971.44	-2295.65	-2294.51	-305.60	-984.78
PILOTE_6	-2011.14	-1482.89	-1898.04	-1855.75	595.26	402.56

MÁXIMA COMPRESIÓN EN CARACTERÍSTICA	4094.89	kN
COMPRESIÓN ADMISIBLE EN CARACTERÍSTICA	5399.61	kN
CUMPLE?	VERDADERO	
MÁXIMA COMPRESIÓN EN SISMO	5762.97	kN
COMPRESIÓN ADMISIBLE EN SISMO	6135.92	kN
CUMPLE?	VERDADERO	
MÁXIMA TRACCIÓN EN SISMO	595.26	kN
COMPRESIÓN ADMISIBLE EN SISMO	2534.19	kN
CUMPLE?	VERDADERO	

PILAS 5 A 9. AXILES EN PILOTES Y COMPROBACIÓN GEOTÉCNICA

ESTRUCTURA E3. TABLERO ANCHO 15.3

	CARACT_01	CARACT_02	CARACT_03	CARACT_04	ELU_SIS_X	ELU_SIS_Y
PILOTE_1	-3239.83	-3435.92	-2999.47	-3047.65	-5463.95	-5279.48
PILOTE_2	-2900.08	-3103.43	-2732.59	-2749.53	-4798.19	-4237.85
PILOTE_3	-2560.33	-2770.94	-2465.71	-2451.42	-4132.42	-3196.23
PILOTE_4	-2220.59	-2438.45	-2198.83	-2153.30	-3466.65	-2154.60
PILOTE_5	-2205.78	-1667.40	-1907.02	-1952.56	-331.65	-1643.71
PILOTE_6	-1866.03	-1334.91	-1640.14	-1654.44	334.11	-602.08
PILOTE_7	-1526.29	-1002.42	-1373.26	-1356.32	999.88	439.55
PILOTE_8	-1186.54	-669.94	-1106.39	-1058.20	1665.65	1481.17

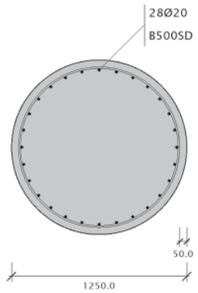
MÁXIMA COMPRESIÓN EN CARACTERÍSTICA	3435.92	kN
COMPRESIÓN ADMISIBLE EN CARACTERÍSTICA	5399.61	kN
CUMPLE?	VERDADERO	
MÁXIMA COMPRESIÓN EN SISMO	5463.95	kN
COMPRESIÓN ADMISIBLE EN SISMO	6135.92	kN
CUMPLE?	VERDADERO	
MÁXIMA TRACCIÓN EN SISMO	1665.65	kN
COMPRESIÓN ADMISIBLE EN SISMO	2534.19	kN
CUMPLE?	VERDADERO	

15.3 PILA 1 A 4/ PILOTE

1.- Norma

Instrucción de Hormigón Estructural (EHE-08)

2.- Detalle

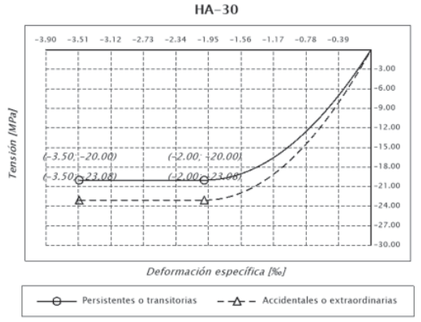


Hormigón: HA-30

Hormigón: 12271.85 cm²
Armaduras: 8796.46 mm²
Cuantía: 7.17 ‰

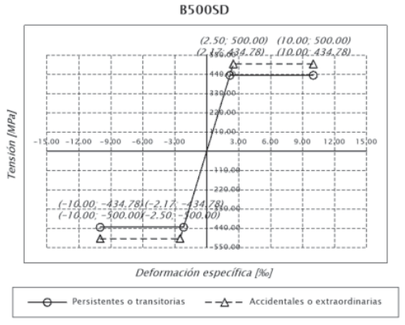
3.- Materiales

3.1.- Hormigón



Designación: HA-30
f_{ck}: 30.00 MPa
α_{cc}: 1.000 (Persistentes o transitorias)
α_{cc}: 1.000 (Accidentales o extraordinarias)
γ_c: 1.500 (Persistentes o transitorias)
γ_c: 1.300 (Accidentales o extraordinarias)
f_{cd}: 20.00 MPa (Persistentes o transitorias)
f_{cd}: 23.08 MPa (Accidentales o extraordinarias)
ϵ_{c0}: 2.00 ‰
ϵ_{cu}: 3.50 ‰
n: 2.000 (exponente)

3.2.- Armadura



Designación: B500SD
f_{yk}: 500.00 MPa
γ_s: 1.150 (Persistentes o transitorias)
γ_s: 1.000 (Accidentales o extraordinarias)
f_{yd}: 434.78 MPa (Persistentes o transitorias)
f_{yd}: 500.00 MPa (Accidentales o extraordinarias)
$\epsilon_{máx}$: 10.00 ‰
E_s: 200000.0 MPa

4.- Esfuerzos internos aplicados

Empresa:	ACL ESTRUCTURAS	**Proyecto:**	AUTOVIA ALMANZORA. TRAMO: CUCADOR-ENL AL-7106
Dirección:		**Código:**	ESTRUCTURA E3
Teléfono/Fax:		**Autor:**	
Sitio web:		**Fecha:**	22/06/2017

Combinación	N_d *[kN]*	Myy_d *[kN·m]*	Mzz_d *[kN·m]*	Accidental
PILOTE_1_ELU_PER_01	-5420.05	-324.89	213.67	No
PILOTE_2_ELU_PER_01	-4702.29	-324.89	213.67	No
PILOTE_3_ELU_PER_01	-3984.53	-324.89	213.67	No
PILOTE_4_ELU_PER_01	-4122.40	-324.89	213.67	No
PILOTE_5_ELU_PER_01	-3404.64	-324.89	213.67	No
PILOTE_6_ELU_PER_01	-2686.88	-324.89	213.67	No
PILOTE_1_ELU_PER_02	-5556.26	-583.63	319.42	No
PILOTE_2_ELU_PER_02	-4883.13	-583.63	319.42	No
PILOTE_3_ELU_PER_02	-4210.01	-583.63	319.42	No
PILOTE_4_ELU_PER_02	-3319.99	-583.63	319.42	No
PILOTE_5_ELU_PER_02	-2646.87	-583.63	319.42	No
PILOTE_6_ELU_PER_02	-1973.74	-583.63	319.42	No
PILOTE_1_ELU_PER_03	-5002.02	-350.58	224.90	No
PILOTE_2_ELU_PER_03	-4450.21	-350.58	224.90	No
PILOTE_3_ELU_PER_03	-3898.41	-350.58	224.90	No
PILOTE_4_ELU_PER_03	-3631.59	-350.58	224.90	No
PILOTE_5_ELU_PER_03	-3079.79	-350.58	224.90	No
PILOTE_6_ELU_PER_03	-2527.98	-350.58	224.90	No
PILOTE_1_ELU_PER_04	-5065.46	-351.50	273.00	No
PILOTE_2_ELU_PER_04	-4451.93	-351.50	273.00	No
PILOTE_3_ELU_PER_04	-3838.39	-351.50	273.00	No
PILOTE_4_ELU_PER_04	-3691.61	-351.50	273.00	No
PILOTE_5_ELU_PER_04	-3078.08	-351.50	273.00	No
PILOTE_6_ELU_PER_04	-2464.54	-351.50	273.00	No
PILOTE_1_ELU_SIS_X	-5702.08	-1200.37	669.28	Si
PILOTE_2_ELU_SIS_X	-4813.64	-1200.37	669.28	Si
PILOTE_3_ELU_SIS_X	-3925.20	-1200.37	669.28	Si
PILOTE_4_ELU_SIS_X	-1242.52	-1200.37	669.28	Si
PILOTE_5_ELU_SIS_X	-354.08	-1200.37	669.28	Si
PILOTE_6_ELU_SIS_X	534.36	-1200.37	669.28	Si
PILOTE_1_ELU_SIS_Y	-5552.00	-853.01	1055.08	Si
PILOTE_2_ELU_SIS_Y	-4168.39	-853.01	1055.08	Si
PILOTE_3_ELU_SIS_Y	-2784.79	-853.01	1055.08	Si
PILOTE_4_ELU_SIS_Y	-2382.93	-853.01	1055.08	Si
PILOTE_5_ELU_SIS_Y	-999.32	-853.01	1055.08	Si
PILOTE_6_ELU_SIS_Y	384.29	-853.01	1055.08	Si

5.- Comprobaciones

La sección transversal resiste todas las combinaciones.

Combinación: PILOTE_6_ELU_SIS_X

5.1.- Comprobación de resistencia a los esfuerzos actuantes

5.1.1) Hormigón

Máxima deformación de compresión: -0.76 ‰

Máxima tensión de compresión: -14.14 MPa

5.1.2) Armadura

Máxima deformación de compresión: -0.56 ‰

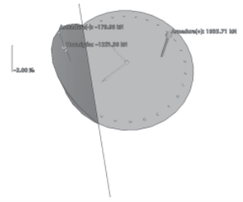
Máxima tensión de compresión: -111.09 MPa

Máxima deformación de tracción: 2.56 ‰

Máxima tensión de tracción: 500.00 MPa

5.1.3) Equilibrio

Valor y posición de las resultantes internas

Resultante	Valor *[kN]*	Y *[m]*	Z *[m]*	Vista 3D
Hormigón	-1221.38	0.247	0.443	
Armadura comprimida	-179.98	0.248	0.448	
Armadura traccionada	1935.71	-0.167	-0.299	

5.2.- Comprobación de resistencia para la situación de colapso

Modo de colapsar: Axil y excentricidades Y-Z constantes

N_u: 534.36 kN

Myy_u: -1681.23 kN·m

Mzz_u: 937.39 kN·m

Aprovechamiento: 71.40 %

5.2.1) Hormigón

Máxima deformación de compresión: -2.25 ‰

Máxima tensión de compresión: -23.08 MPa

5.2.2) Armadura

Máxima deformación de compresión: -1.51 ‰

Máxima tensión de compresión: -302.54 MPa

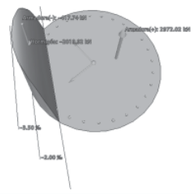
Máxima deformación de tracción: 10.00 ‰

Máxima tensión de tracción: 500.00 MPa

5.2.3) Equilibrio

Valor y posición de las resultantes internas

Empresa:	ACL ESTRUCTURAS	**Proyecto:**	AUTOVIA ALMANZORA. TRAMO: CUCADOR-ENL AL-7106
Dirección:		**Código:**	ESTRUCTURA E3
Teléfono/Fax:		**Autor:**	
Sitio web:		**Fecha:**	22/06/2017

Resultante	Valor *[kN]*	Y *[m]*	Z *[m]*	Vista 3D
Hormigón	-2019.92	0.255	0.455	
Armadura comprimida	-417.74	0.260	0.455	
Armadura traccionada	2972.02	-0.106	-0.192	

CÁLCULO A CORTANTE SEGÚN EHE

FECHA:	22/06/2017
OBRA:	AUTOVÍA ALMANZORA
ESTRUCTURA:	E3. CALZADA ANCHURA 15.3 PILAS 1 A 4

CÁLCULO ARMADURA DE CORTANTE EN PILOTES DE PILA

REF.	DATOS													RESULTADOS				
	Vrd (ton)	Nd (ton)	Ac (m2)	fck (Mpa)	γc	bo (cm)	d (cm)	cotg(θ)	alpha (º)	As (cm2)	Ap (cm2)	fyk (kp/cm2)	fpk (kp/cm2)	Vrd sin cercos (ton)	As,nec (cm2/ml)	Sep.max (cm)	Vu1 (ton)	Decalaje (m)
PILOTE_1_ELU_PER_01	16.52	552.50	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	99.40	9.00	30.00	606.12	1.39
PILOTE_2_ELU_PER_01	16.52	479.34	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	90.55	9.00	30.00	606.12	1.36
PILOTE_3_ELU_PER_01	16.52	406.17	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	81.69	9.00	30.00	606.12	1.34
PILOTE_4_ELU_PER_01	16.52	420.22	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	83.39	9.00	30.00	606.12	1.34
PILOTE_5_ELU_PER_01	16.52	347.06	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	74.54	9.00	30.00	606.12	1.32
PILOTE_6_ELU_PER_01	16.52	273.89	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	65.69	9.00	30.00	606.12	1.29
PILOTE_1_ELU_PER_02	28.26	566.39	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	101.08	9.00	30.00	606.12	1.12
PILOTE_2_ELU_PER_02	28.26	497.77	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	92.78	9.00	30.00	606.12	1.11
PILOTE_3_ELU_PER_02	28.26	429.16	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	84.48	9.00	30.00	606.12	1.10
PILOTE_4_ELU_PER_02	28.26	338.43	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	73.50	9.00	30.00	606.12	1.08
PILOTE_5_ELU_PER_02	28.26	269.81	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	65.19	9.00	30.00	606.12	1.06
PILOTE_6_ELU_PER_02	28.26	201.20	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	56.89	9.00	30.00	606.12	1.04
PILOTE_1_ELU_PER_03	17.69	509.89	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	94.24	9.00	30.00	606.12	1.33
PILOTE_2_ELU_PER_03	17.69	453.64	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	87.44	9.00	30.00	606.12	1.32
PILOTE_3_ELU_PER_03	17.69	397.39	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	80.63	9.00	30.00	606.12	1.30
PILOTE_4_ELU_PER_03	17.69	370.19	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	77.34	9.00	30.00	606.12	1.29
PILOTE_5_ELU_PER_03	17.69	313.94	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	70.53	9.00	30.00	606.12	1.27
PILOTE_6_ELU_PER_03	17.69	257.69	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	63.73	9.00	30.00	606.12	1.25

CÁLCULO A CORTANTE SEGÚN EHE

FECHA:	22/06/2017
OBRA:	AUTOVÍA ALMANZORA
ESTRUCTURA:	E3. CALZADA ANCHURA 15.3 PILAS 1 A 4

CÁLCULO ARMADURA DE CORTANTE EN PILOTES DE PILA

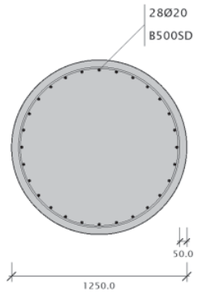
REF.	DATOS													RESULTADOS				
	Vrd (ton)	Nd (ton)	Ac (m2)	fck (Mpa)	γc	bo (cm)	d (cm)	cotg(θ)	alpha (º)	As (cm2)	Ap (cm2)	fyk (kp/cm2)	fpk (kp/cm2)	Vrd sin cercos (ton)	As,nec (cm2/ml)	Sep.max (cm)	Vu1 (ton)	Decalaje (m)
PILOTE_1_ELU_PER_04	18.90	516.36	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	95.03	9.00	30.00	606.12	1.30
PILOTE_2_ELU_PER_04	18.90	453.81	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	87.46	9.00	30.00	606.12	1.28
PILOTE_3_ELU_PER_04	18.90	391.27	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	79.89	9.00	30.00	606.12	1.26
PILOTE_4_ELU_PER_04	18.90	376.31	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	78.08	9.00	30.00	606.12	1.25
PILOTE_5_ELU_PER_04	18.90	313.77	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	70.51	9.00	30.00	606.12	1.23
PILOTE_6_ELU_PER_04	18.90	251.23	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	62.94	9.00	30.00	606.12	1.21
PILOTE_1_ELU_SIS_X	58.37	581.25	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	102.88	9.00	30.00	606.12	0.93
PILOTE_2_ELU_SIS_X	58.37	490.69	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	91.92	9.00	30.00	606.12	0.92
PILOTE_3_ELU_SIS_X	58.37	400.12	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	80.96	9.00	30.00	606.12	0.91
PILOTE_4_ELU_SIS_X	58.37	126.66	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	47.87	9.00	30.00	606.12	0.88
PILOTE_5_ELU_SIS_X	58.37	36.09	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	36.91	9.00	30.00	606.12	0.86
PILOTE_6_ELU_SIS_X	58.37	-54.47	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	25.95	9.74	30.00	606.12	0.82
PILOTE_1_ELU_SIS_Y	57.63	565.95	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	101.03	9.00	30.00	606.12	0.93
PILOTE_2_ELU_SIS_Y	57.63	424.91	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	83.96	9.00	30.00	606.12	0.92
PILOTE_3_ELU_SIS_Y	57.63	283.87	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	66.89	9.00	30.00	606.12	0.90
PILOTE_4_ELU_SIS_Y	57.63	242.91	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	61.94	9.00	30.00	606.12	0.90
PILOTE_5_ELU_SIS_Y	57.63	101.87	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	44.87	9.00	30.00	606.12	0.88
PILOTE_6_ELU_SIS_Y	57.63	-39.17	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	27.80	9.02	30.00	606.12	0.83

15.3 PILA 5 A 9 PILOTE

1.- Norma

Instrucción de Hormigón Estructural (EHE-08)

2.- Detalle

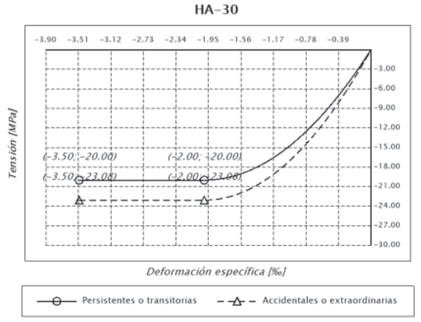


Hormigón: HA-30

Hormigón: 12271.85 cm²
Armaduras: 8796.46 mm²
Cuantía: 7.17 ‰

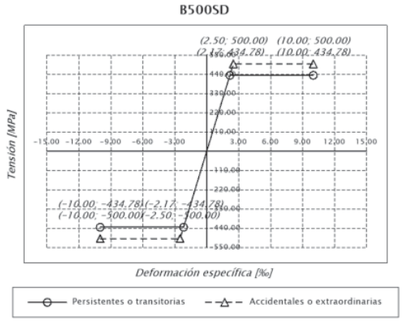
3.- Materiales

3.1.- Hormigón



Designación: HA-30
f_{ck}: 30.00 MPa
α_{cc}: 1.000 (Persistentes o transitorias)
α_{cc}: 1.000 (Accidentales o extraordinarias)
γ_c: 1.500 (Persistentes o transitorias)
γ_c: 1.300 (Accidentales o extraordinarias)
f_{cd}: 20.00 MPa (Persistentes o transitorias)
f_{cd}: 23.08 MPa (Accidentales o extraordinarias)
ϵ_{c0}: 2.00 ‰
ϵ_{cu}: 3.50 ‰
n: 2.000 (exponente)

3.2.- Armadura



Designación: B500SD
f_{yk}: 500.00 MPa
γ_s: 1.150 (Persistentes o transitorias)
γ_s: 1.000 (Accidentales o extraordinarias)
f_{yd}: 434.78 MPa (Persistentes o transitorias)
f_{yd}: 500.00 MPa (Accidentales o extraordinarias)
$\epsilon_{máx}$: 10.00 ‰
E_s: 200000.0 MPa

4.- Esfuerzos internos aplicados

Empresa:	ACL ESTRUCTURAS	**Proyecto:**	AUTOVIA ALMANZORA. TRAMO: CUCADOR-ENL AL-7106
Dirección:		**Código:**	ESTRUCTURA E3
Teléfono/Fax:		**Autor:**	
Sitio web:		**Fecha:**	22/06/2017

Combinación	N_d [kN]	Myy_d [kN·m]	Mzz_d [kN·m]	Accidental
PILOTE_1_ELU_PER_01	-4406.14	-234.43	156.17	No
PILOTE_2_ELU_PER_01	-3937.17	-234.43	156.17	No
PILOTE_3_ELU_PER_01	-3468.20	-234.43	156.17	No
PILOTE_4_ELU_PER_01	-2999.22	-234.43	156.17	No
PILOTE_5_ELU_PER_01	-2976.37	-234.43	156.17	No
PILOTE_6_ELU_PER_01	-2507.40	-234.43	156.17	No
PILOTE_7_ELU_PER_01	-2038.43	-234.43	156.17	No
PILOTE_8_ELU_PER_01	-1569.46	-234.43	156.17	No
PILOTE_1_ELU_PER_02	-4670.86	-410.65	231.94	No
PILOTE_2_ELU_PER_02	-4211.69	-410.65	231.94	No
PILOTE_3_ELU_PER_02	-3752.51	-410.65	231.94	No
PILOTE_4_ELU_PER_02	-3293.34	-410.65	231.94	No
PILOTE_5_ELU_PER_02	-2249.56	-410.65	231.94	No
PILOTE_6_ELU_PER_02	-1790.39	-410.65	231.94	No
PILOTE_7_ELU_PER_02	-1331.22	-410.65	231.94	No
PILOTE_8_ELU_PER_02	-872.05	-410.65	231.94	No
PILOTE_1_ELU_PER_03	-4088.82	-253.70	164.59	No
PILOTE_2_ELU_PER_03	-3717.13	-253.70	164.59	No
PILOTE_3_ELU_PER_03	-3345.44	-253.70	164.59	No
PILOTE_4_ELU_PER_03	-2973.75	-253.70	164.59	No
PILOTE_5_ELU_PER_03	-2569.15	-253.70	164.59	No
PILOTE_6_ELU_PER_03	-2197.46	-253.70	164.59	No
PILOTE_7_ELU_PER_03	-1825.77	-253.70	164.59	No
PILOTE_8_ELU_PER_03	-1454.08	-253.70	164.59	No
PILOTE_1_ELU_PER_04	-4161.10	-254.39	200.66	No
PILOTE_2_ELU_PER_04	-3742.55	-254.39	200.66	No
PILOTE_3_ELU_PER_04	-3324.00	-254.39	200.66	No
PILOTE_4_ELU_PER_04	-2905.45	-254.39	200.66	No
PILOTE_5_ELU_PER_04	-2637.45	-254.39	200.66	No
PILOTE_6_ELU_PER_04	-2218.91	-254.39	200.66	No
PILOTE_7_ELU_PER_04	-1800.36	-254.39	200.66	No
PILOTE_8_ELU_PER_04	-1381.81	-254.39	200.66	No
PILOTE_1_ELU_SIS_X	-5463.95	-893.44	498.94	Si
PILOTE_2_ELU_SIS_X	-4798.19	-893.44	498.94	Si
PILOTE_3_ELU_SIS_X	-4132.42	-893.44	498.94	Si
PILOTE_4_ELU_SIS_X	-3466.65	-893.44	498.94	Si
PILOTE_5_ELU_SIS_X	-331.65	-893.44	498.94	Si
PILOTE_6_ELU_SIS_X	334.11	-893.44	498.94	Si

Combinación	N_d [kN]	Myy_d [kN·m]	Mzz_d [kN·m]	Accidental
PILOTE_7_ELU_SIS_X	999.88	-893.44	498.94	Si
PILOTE_8_ELU_SIS_X	1665.65	-893.44	498.94	Si
PILOTE_1_ELU_SIS_Y	-5279.48	-632.92	788.28	Si
PILOTE_2_ELU_SIS_Y	-4237.85	-632.92	788.28	Si
PILOTE_3_ELU_SIS_Y	-3196.23	-632.92	788.28	Si
PILOTE_4_ELU_SIS_Y	-2154.60	-632.92	788.28	Si
PILOTE_5_ELU_SIS_Y	-1643.71	-632.92	788.28	Si
PILOTE_6_ELU_SIS_Y	-602.08	-632.92	788.28	Si
PILOTE_7_ELU_SIS_Y	439.55	-632.92	788.28	Si
PILOTE_8_ELU_SIS_Y	1481.17	-632.92	788.28	Si

5.- Comprobaciones

La sección transversal resiste todas las combinaciones.

Combinación: PILOTE_8_ELU_SIS_X

5.1.- Comprobación de resistencia a los esfuerzos actuantes

5.1.1) Hormigón

Máxima deformación de compresión: -0.55 ‰

Máxima tensión de compresión: -10.98 MPa

5.1.2) Armadura

Máxima deformación de compresión: -0.34 ‰

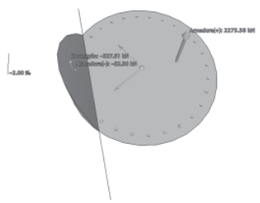
Máxima tensión de compresión: -67.50 MPa

Máxima deformación de tracción: 3.00 ‰

Máxima tensión de tracción: 500.00 MPa

5.1.3) Equilibrio

Valor y posición de las resultantes internas

Resultante	Valor [kN]	Y [m]	Z [m]	Vista 3D
Hormigón	-527.61	0.265	0.475	
Armadura comprimida	-82.30	0.256	0.464	
Armadura traccionada	2275.56	-0.149	-0.266	

5.2.- Comprobación de resistencia para la situación de colapso

Empresa:	ACL ESTRUCTURAS	**Proyecto:**	AUTOVIA ALMANZORA. TRAMO: CUCADOR-ENL AL-7106
Dirección:		**Código:**	ESTRUCTURA E3
Teléfono/Fax:		**Autor:**	
Sitio web:		**Fecha:**	22/06/2017

Modo de colapsar: Axil y excentricidades Y-Z constantes

N_u: 1665.65 kN

Myy_u: -1213.71 kN·m

Mzz_u: 677.79 kN·m

Aprovechamiento: 73.61 %

5.2.1) Hormigón

Máxima deformación de compresión: -1.70 ‰

Máxima tensión de compresión: -22.55 MPa

5.2.2) Armadura

Máxima deformación de compresión: -0.99 ‰

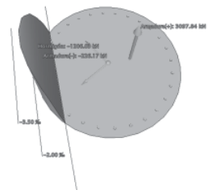
Máxima tensión de compresión: -198.55 MPa

Máxima deformación de tracción: 10.00 ‰

Máxima tensión de tracción: 500.00 MPa

5.2.3) Equilibrio

Valor y posición de las resultantes internas

Resultante	Valor [kN]	Y [m]	Z [m]	Vista 3D
Hormigón	-1206.03	0.265	0.477	
Armadura comprimida	-226.17	0.252	0.470	
Armadura traccionada	3097.84	-0.097	-0.172	

CÁLCULO A CORTANTE SEGÚN EHE

FECHA:	22/06/2017
OBRA:	AUTOVÍA ALMANZORA
ESTRUCTURA:	E3. CALZADA ANCHURA 15.3 PILAS 5 A 9

CÁLCULO ARMADURA DE CORTANTE EN PILOTES DE PILA

REF.	DATOS													RESULTADOS				
	Vrd (ton)	Nd (ton)	Ac (m2)	fck (Mpa)	γc	bo (cm)	d (cm)	cotg(θ)	alpha (º)	As (cm2)	Ap (cm2)	fyk (kp/cm2)	fpk (kp/cm2)	Vrd sin cercos (ton)	As,nec (cm2/ml)	Sep.max (cm)	Vu1 (ton)	Decalaje (m)
PILOTE_1_ELU_PER_01	11.96	449.15	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	86.89	9.00	30.00	606.12	1.59
PILOTE_2_ELU_PER_01	11.96	401.34	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	81.11	9.00	30.00	606.12	1.56
PILOTE_3_ELU_PER_01	11.96	353.54	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.32	9.00	30.00	606.12	1.54
PILOTE_4_ELU_PER_01	11.96	305.73	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	69.54	9.00	30.00	606.12	1.51
PILOTE_5_ELU_PER_01	11.96	303.40	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	69.26	9.00	30.00	606.12	1.51
PILOTE_6_ELU_PER_01	11.96	255.60	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	63.47	9.00	30.00	606.12	1.49
PILOTE_7_ELU_PER_01	11.96	207.79	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	57.69	9.00	30.00	606.12	1.46
PILOTE_8_ELU_PER_01	11.96	159.99	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	51.90	9.00	30.00	606.12	1.43
PILOTE_1_ELU_PER_02	20.03	476.13	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	90.16	9.00	30.00	606.12	1.25
PILOTE_2_ELU_PER_02	20.03	429.33	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	84.50	9.00	30.00	606.12	1.24
PILOTE_3_ELU_PER_02	20.03	382.52	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	78.83	9.00	30.00	606.12	1.23
PILOTE_4_ELU_PER_02	20.03	335.71	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	73.17	9.00	30.00	606.12	1.21
PILOTE_5_ELU_PER_02	20.03	229.31	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	60.29	9.00	30.00	606.12	1.18
PILOTE_6_ELU_PER_02	20.03	182.51	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	54.63	9.00	30.00	606.12	1.16
PILOTE_7_ELU_PER_02	20.03	135.70	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	48.96	9.00	30.00	606.12	1.14
PILOTE_8_ELU_PER_02	20.03	88.89	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	43.30	9.00	30.00	606.12	1.12
PILOTE_1_ELU_PER_03	12.84	416.80	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	82.98	9.00	30.00	606.12	1.51
PILOTE_2_ELU_PER_03	12.84	378.91	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	78.40	9.00	30.00	606.12	1.50
PILOTE_3_ELU_PER_03	12.84	341.02	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	73.81	9.00	30.00	606.12	1.48
PILOTE_4_ELU_PER_03	12.84	303.13	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	69.23	9.00	30.00	606.12	1.46
PILOTE_5_ELU_PER_03	12.84	261.89	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	64.23	9.00	30.00	606.12	1.44
PILOTE_6_ELU_PER_03	12.84	224.00	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	59.65	9.00	30.00	606.12	1.42
PILOTE_7_ELU_PER_03	12.84	186.11	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	55.07	9.00	30.00	606.12	1.40
PILOTE_8_ELU_PER_03	12.84	148.22	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	50.48	9.00	30.00	606.12	1.37

CÁLCULO A CORTANTE SEGÚN EHE

FECHA:	22/06/2017
OBRA:	AUTOVÍA ALMANZORA
ESTRUCTURA:	E3. CALZADA ANCHURA 15.3 PILAS 5 A 9

CÁLCULO ARMADURA DE CORTANTE EN PILOTES DE PILA

REF.	DATOS													RESULTADOS				
	Vrd (ton)	Nd (ton)	Ac (m2)	fck (Mpa)	γc	bo (cm)	d (cm)	cotg(θ)	alpha (º)	As (cm2)	Ap (cm2)	fyk (kp/cm2)	fpk (kp/cm2)	Vrd sin cercos (ton)	As,nec (cm2/ml)	Sep.max (cm)	Vu1 (ton)	Decalaje (m)
PILOTE_1_ELU_PER_04	13.76	424.17	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	83.87	9.00	30.00	606.12	1.47
PILOTE_2_ELU_PER_04	13.76	381.50	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	78.71	9.00	30.00	606.12	1.45
PILOTE_3_ELU_PER_04	13.76	338.84	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	73.55	9.00	30.00	606.12	1.43
PILOTE_4_ELU_PER_04	13.76	296.17	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	68.38	9.00	30.00	606.12	1.41
PILOTE_5_ELU_PER_04	13.76	268.85	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	65.08	9.00	30.00	606.12	1.40
PILOTE_6_ELU_PER_04	13.76	226.19	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	59.91	9.00	30.00	606.12	1.37
PILOTE_7_ELU_PER_04	13.76	183.52	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	54.75	9.00	30.00	606.12	1.35
PILOTE_8_ELU_PER_04	13.76	140.86	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	49.59	9.00	30.00	606.12	1.33
PILOTE_1_ELU_SIS_X	43.46	556.98	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	99.94	9.00	30.00	606.12	0.99
PILOTE_2_ELU_SIS_X	43.46	489.11	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	91.73	9.00	30.00	606.12	0.98
PILOTE_3_ELU_SIS_X	43.46	421.25	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	83.52	9.00	30.00	606.12	0.97
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96
PILOTE_4_ELU_SIS_X	43.46	353.38	1.23	30	1.5	90	110	1	90	22	0	5100	15700.00	75.31	9.00	30.00	606.12	0.96