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Units system: Metric

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Steel connections

Detailed report

Connection name : COBERTURA CURVA METALICA
 Connection ID : 1
 Design code : AISC 360-2005 LRFD

Family : Base plate (BPI)
 Type : Column - Base (CB)
 Description : COBERTURA CURVA METALICA

LOADS

Members	Load	Type	V2 [Ton]	V3 [Ton]	M33 [Ton*m]	M22 [Ton*m]	Axial [Ton]
Column	1 - CM	Design	0.62	0.02	--	--	--
	1 - CV	Design	0.24	0.08	--	--	--
	1 - Vx	Design	0.38	0.00	--	--	--
	1 - SDx	Design	-0.15	0.00	--	--	--
	1 - SDz	Design	--	--	--	0.01	--
	1 - Vz	Design	--	--	--	0.05	--
	1 - id0	Design	0.87	0.03	--	--	--
	1 - id1	Design	1.13	0.15	--	--	--
	1 - id2	Design	1.05	0.03	--	0.04	--
	1 - id3	Design	1.59	0.11	--	0.08	--
	1 - id4	Design	0.83	0.11	--	0.01	--
	1 - id5	Design	1.17	0.02	--	0.08	--
	1 - id6	Design	0.41	0.02	--	0.01	--

Design for major axis

Base plate (AISC 360-05 LRFD)

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<u>Base plate</u>						
Longitudinal dimension	[cm]	60.00	52.39	--	✓	Tables J3.4, J3.5 table J2.4
Transversal dimension	[cm]	30.00	21.91	--	✓	
Distance from anchor to edge	[cm]	7.50	2.86	--	✓	
Weld size	[1/16in]	5	2	--	✓	

WARNINGS

⚠ There are anchors in invalid positions

DESIGN CHECK

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
<u>Pedestal</u>						
Axial bearing	[Ton/cm2]	0.13	0.00	1 - id6	0.00	
<u>Base plate</u>						
Flexural yielding (bearing interface)	[Ton*m/m]	0.23	0.00	1 - id6	0.00	DG1 Eq. 3.3.13
Flexural yielding (tension interface)	[Ton*m/m]	0.23	0.00	1 - id6	0.00	DG1 Eq. 3.3.13
<u>Column</u>						
Weld capacity	[Ton/m]	186.45	0.00	1 - id6	0.00	p. 8-9, Sec. J2.5, Sec. J2.4
Elastic method weld shear capacity	[Ton/m]	124.30	1.72	1 - id3	0.01	p. 8-9, Sec. J2.5, Sec. J2.4
Elastic method weld axial capacity	[Ton/m]	186.45	0.00	1 - id6	0.00	p. 8-9, Sec. J2.5, Sec. J2.4

WARNINGS

High value moments detected in the axis perpendicular to the design axis

Anchors (ACI 318-08)

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<u>Anchors</u>						
Anchor spacing	[cm]	12.00	6.35	--		Sec. D.8.1
Distance from anchor to edge	[cm]	9.00	7.62	--		Sec. D.7.7.1
Effective length	[cm]	28.07	--	98.41		

DESIGN CHECK

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
Steel strength of anchor in tension	[Ton]	4.46	0.00	1 - id6	0.00	Eq. D-3
Breakout of anchor in tension	[Ton]	2.95	0.00	1 - id6	0.00	Eq. D-4, Sec. D.3.3.3
Pullout of anchor in tension	[Ton]	2.11	0.00	1 - id6	0.00	Sec. D.3.3.3
Steel strength of anchor in shear	[Ton]	1.86	0.20	1 - id3	0.11	Eq. D.20
Breakout of group of anchors in shear	[Ton]	2.99	1.59	1 - id3	0.53	Sec. D.3.3.3
Pryout of anchor in shear	[Ton]	5.91	0.20	1 - id3	0.03	Eq. D-4, Sec. D.3.3.3

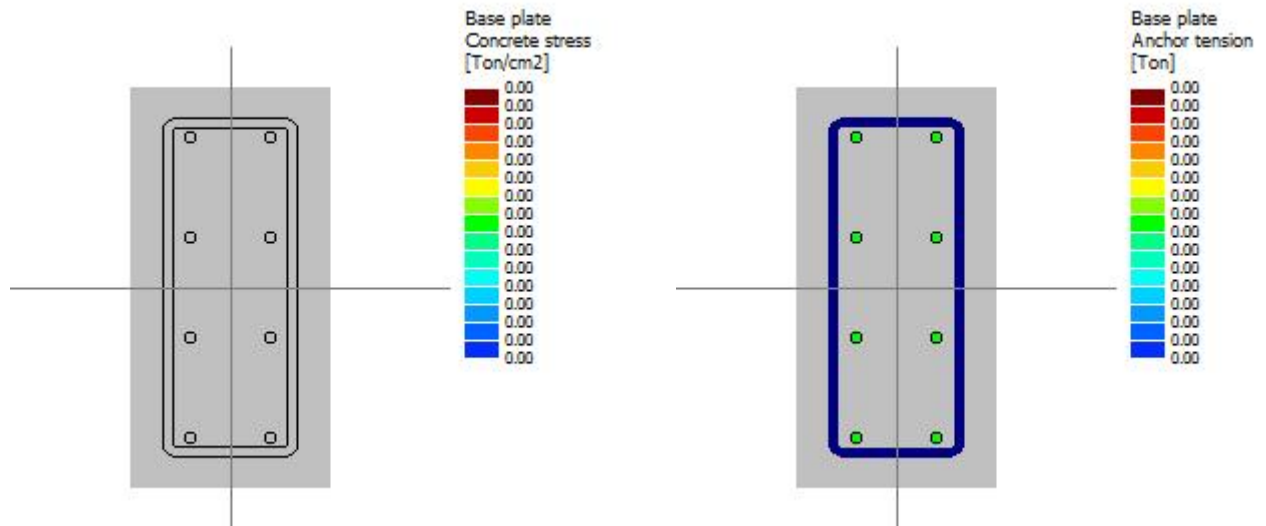
WARNINGS

High value shear forced detected in the axis perpendicular to the design axis

Critical strength ratio **0.53**

Major axis analysis

Maximum compression and tension (1 - CM)



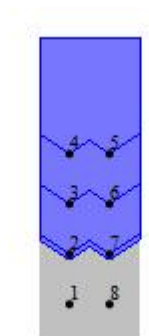
Maximum bearing pressure : 0.00000 [Ton/cm²]
 Minimum bearing pressure : 0.00000 [Ton/cm²]
 Maximum anchor tension : 0.00000 [Ton]
 Minimum anchor tension : 0.00000 [Ton]
 Neutral axis angle : 0.00000
 Bearing length : 0.00000 [cm]

Anchors tensions

Anchor	Transverse [cm]	Longitudinal [cm]	Shear [Ton]	Tension [Ton]
1	-6.00	-22.50	0.08	0.00
2	-6.00	-7.50	0.08	0.00
3	-6.00	7.50	0.08	0.00
4	-6.00	22.50	0.08	0.00
5	6.00	22.50	0.08	0.00
6	6.00	7.50	0.08	0.00
7	6.00	-7.50	0.08	0.00
8	6.00	-22.50	0.08	0.00

Major axis anchor groups

Results for shear breakout (1 - id3)



Group	Area [cm ²]	Shear [Ton]	Anchors
1	30.00	1.59	1, 2, 3, 4, 5, 6, 7, 8
2	29.23	1.19	2, 3, 4, 5, 6, 7
3	22.48	0.80	3, 4, 5, 6
4	15.73	0.40	4, 5