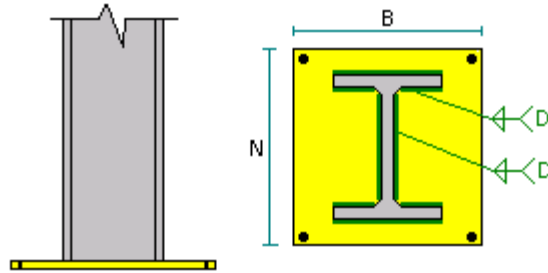


Connection Template : Fixed uniaxial major axis BP
Connection ID : CB - N(1) - M(1)
Design Code: AISC-LRFD
Status:: OK



GENERAL DATA

Design axis	:	Major axis
Cracked concrete	:	No
Brittle steel	:	No
Anchor bolts welded to base plate	:	No
Consider friction	:	Yes
Coefficient of friction	:	0.40
Pressure distribution	:	Uniform

MEMBERS :

<u>Column</u>		
Section	=	W12X96
bf	=	12.16 [in]
d	=	12.71 [in]
k	=	1.35 [in]
kl	=	0.72 [in]
tf	=	0.90 [in]
tw	=	0.55 [in]
Material	=	STEEL
Fy	=	36.00 [Kip/in2]
Fu	=	58.00 [Kip/in2]
<u>Concrete base</u>		
Longitudinal dimension	=	8.33 [ft]
Transversal dimension	=	8.33 [ft]
Thickness	=	1.67 [ft]
Material	=	C 4-60
Fc	=	4.00 [Kip/in2]

CONNECTION(S) :

Base plate

<u>Plate</u>		
Length	=	22.00 [in]
Width	=	22.00 [in]
Thickness	=	2.50 [in]
Material	=	A36

Fy	=	36.00	[Kip/in2]
Fu	=	58.00	[Kip/in2]
Weld	=	E70XX	
D	=	5	[1/16 in]
<u> Anchors </u>			
Material	=	F1554	Gr105
Fy	=	105.00	[Kip/in2]
Fu	=	125.00	[Kip/in2]
Geometry type	=	Longitudinal	
Anchor type	=	Headed	
Head type	=	Hexagonal	
D	=	0.75	[in]
Effective length	=	18.00	[in]
Total length	=	21.49	[in]
Lev	=	1.50	[in]
Longitudinal edge distance on the plate			
Leh	=	1.50	[in]
Transverse edge distance on the plate			
Anchor	Transverse	Longitudinal	
	[in]	[in]	
1	-9.50	-9.50	
2	-9.50	9.50	
3	9.50	9.50	
4	9.50	-9.50	

Connection Template : Fixed uniaxial major axis BP
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LOADS

Members [Kip]	Load	Type	V2 [Kip]	V3 [Kip]	M33 [Kip*ft]	M22 [Kip*ft]	Axial
Column	LC-1	Design	20.00	--	233.33	--	-250.00

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	[in]	22.00	18.71	--	✓	DG1 B.4.1
Transversal dimension	[in]	22.00	18.16	--	✓	DG1 B.4.1
Weld size	[1/16in]	5	4	--	✓	table J2.4

DESIGN CHECK

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
<hr/>						
<u>Concrete base</u> Axial bearing	[Kip/in2]	4.42	4.42	LC-1	1.00	
<u>Base plate</u> Flexural yielding (bearing interface)	[Kip*ft/ft]	50.63	46.70	LC-1	0.92	DG1 Eq. 3.3.13
Flexural yielding (tension interface)	[Kip*ft/ft]	50.63	3.28	LC-1	0.06	DG1 Eq. 3.3.13
<u>Column</u> Weld capacity	[Kip/ft]	125.29	13.45	LC-1	0.11	Sec. J2.4

Anchors (ACI 318-08)

GEOMETRIC CONSIDERATIONS

Dimensions	Unit	Value	Min. value	Max. value	Sta.	References
<hr/>						
<u>Anchors</u> Anchor spacing	[in]	19.00	3.00	--	✓	Sec. D.8.1
Transverse edge distance	[in]	40.48	3.00	--	✓	Sec. D.7.7.1
Effective length	[in]	18.49	--	19.51	✓	

DESIGN CHECK

Verification	Unit	Capacity	Demand	Ctrl EQ	Ratio	References
<hr/>						
Steel strength of anchor in tension	[Kip]	31.31	10.42	LC-1	0.33	Eq. D-3
Breakout of anchor in tension	[Kip]	109.47	10.42	LC-1	0.10	Sec. D.3.3.3
Breakout of group of anchors in tension	[Kip]	147.98	20.84	LC-1	0.14	Sec. D.3.3.3
Pullout of anchor in tension	[Kip]	20.51	10.42	LC-1	0.51	Sec. D.3.3.3

Steel strength of anchor in shear	[Kip]	16.28	5.00	LC-1	0.31	Eq. D.20
Breakout of anchor in shear	[Kip]	62.65	5.00	LC-1	0.08	Sec. D.3.3.3
Breakout of group of anchors in shear	[Kip]	69.29	20.00	LC-1	0.29	Sec. D.3.3.3
Pryout of anchor in shear	[Kip]	218.93	5.00	LC-1	0.02	Sec. D.3.3.3
Pryout of group of anchors in shear	[Kip]	295.96	10.00	LC-1	0.03	Sec. D.3.3.3
Interaction of tensile and shear forces		1.20	0.82	LC-1	0.68	Eq. D-32

Critical strength ratio	1.00
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Major axis analysis