



Company Name	El Mystico & Janet	Project Title	Twenty-five story blocks
Group/Team Name	Design by Hypnosis	Subtitle	Something completely different
Designer	El Mystico	Job Number	1.1.2.2.2
Date	20 /06 /2018	Client	Mr. Clement Onan

Design Conclusion

End Plate	Fail
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End Plate

Connection Properties

Connection

Connection Title	Flexible End Plate
Connection Type	Shear Connection

Connection Category

Connectivity	Column web-Beam web
Beam Connection	Welded
Column Connection	Bolted

Loading (Factored Load)

Shear Force (kN)	135
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Components

Column Section	SC 250
Material	Fe 410
Beam Section	LB 300
Material	Fe 410
Hole	STD
Plate Section	180X144X10
Thickness (mm)	10
Width (mm)	144
Depth (mm)	180
Hole	STD

Weld

Type	Double Fillet
Size (mm)	10

Bolts

Type	Bearing Bolt
Grade	4.8
Diameter (mm)	12
Bolt Numbers	10
Columns (Vertical Lines)	1
Bolts Per Column	5

Gauge (mm)	0
Pitch (mm)	34
End Distance (mm)	22
Edge Distance (mm)	22
Assembly	
Column-Beam Clearance (mm)	10



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Design Preferences	
Bolt	
Hole Type	Standard
Hole Clearance (mm)	1.0
Material Grade (MPa) (overwrite)	420.0
Slip factor	N/A
Weld	
Type of Weld	Shop weld
Material Grade (MPa) (overwrite)	410.0
Detailing	
Type of Edges	Sheared or hand flame cut
Minimum Edge-End Distance	1.7 times the hole diameter
Are members exposed to corrosive influences?	No
Design	
Design Method	Limit State Design



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Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsb} = ((400.0 \cdot 0.6126 \cdot 12 \cdot 12) / (\sqrt{3} \cdot 1.25 \cdot 1000)) = 15.612$ [cl. 10.3.3]	
Bolt bearing capacity (kN)		$V_{dpb} = (2.5 \cdot 0.519 \cdot 12 \cdot 10.0 \cdot 410) / (1.25 \cdot 1000) = 51.07$ [cl. 10.3.4]	
Bolt capacity (kN)		Min (15.612, 51.07) = 15.612	
Critical bolt shear (kN)	≤ 15.612	14.0	Pass
No. of bolts		10	
No. of column(s) per side of end plate	≤ 2	1	
No. of bolts per column per side of end plate		5	
Bolt pitch (mm)	$\geq 2.5 \cdot 12 = 30, \leq \text{Min}(32 \cdot 6.7, 300) = 215$ [cl. 10.2.2]	34	Pass
Bolt gauge (mm)	$\geq 2.5 \cdot 12 = 30, \leq \text{Min}(32 \cdot 6.7, 300) = 215$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7 \cdot 13.0 = 22, \leq 12 \cdot 6.7 = 80.4$ [cl. 10.2.4]	22	Pass
Edge distance (mm)	$\geq 1.7 \cdot 13.0 = 22, \leq 12 \cdot 6.7 = 80.4$ [cl. 10.2.4]	22	Pass
Block shear capacity (kN)	≥ 135	$V_{db} = 102$ [cl. 6.4.1]	Fail
Plate thickness (mm)	≥ 6	10	Pass
Plate height (mm)	$\geq 0.6 \cdot 300.0 = 180.0, \leq 300.0 - 9.4 - 15.0 - 9.4 - 15.0 - 10 = 241.2$ [cl. 10.2.4, Insdag Detailing]	180	Pass

	Manual, 2002]		
Plate Width (mm)	$\geq 144, \leq 160.0$	144	Pass
Effective weld length on each side(mm)		$180-2*10 = 160$	
Weld strength (kN/mm)	0.422	$f_v = (0.7*10*410)/(\sqrt{3}*1.25*1000)$ $= 1.326$ [cl. 10.5.7]	Pass



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Views



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Additional Comments	This is a sample design report generated in Osdag!
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