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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**	**1.1.1.2.2**
Date	**20 /06 /2018**	**Client**	**Mr. Tid**

Design Conclusion	
Fin Plate	**Fail**
Fin Plate	
Connection Properties	
Connection	
Connection Title	Single Fin Plate
Connection Type	Shear Connection
Connection Category	
Connectivity	Column web-Beam web
Beam Connection	Bolted
Column Connection	Welded
Loading (Factored Load)	
Shear Force (kN)	135
Components	
Column Section	SC 250
Material	Fe 410.0
Beam Section	LB 300
Material	Fe 410.0
Hole	STD
Plate Section	270X110X10
Thickness (mm)	10
Width (mm)	110
Depth (mm)	270
Hole	STD
Weld	
Type	Double Fillet
Size (mm)	8
Bolts	
Type	Bearing Bolt
Grade	4.8
Diameter (mm)	24
Bolt Numbers	3
Columns (Vertical Lines)	1
Bolts Per Column	3

Gauge (mm)	0
Pitch (mm)	85
End Distance (mm)	50
Edge Distance (mm)	50
Assembly	
Column-Beam Clearance (mm)	10.0

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Design Preferences	
Bolt	
Hole Type	Standard
Hole Clearance (mm)	2.0
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
Gap between Beam and Column (mm)	10.0
Are members exposed to corrosive influences?	Yes
Design	
Design Method	Limit State Design

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Design Check			
Check	**Required**	**Provided**	**Remark**
Bolt shear capacity (kN)		V_{dsb} = (400*0.6126*24*24)/(√3*1.25*1000) = 65.217 [cl. 10.3.3]	
Bolt bearing capacity (kN)		V_{dpb} = (2.5*0.519*24*6.7*410.0)/(1.25*1000) = 68.433 [cl. 10.3.4]	
Bolt capacity (kN)		Min (65.217, 68.433) = 65.217	
No. of bolts	135/65.217 = 2.1	3	**Pass**
No.of column(s)	≤ 2	1	
No. of bolts per column		3	
Bolt pitch (mm)	≥ 2.5* 24 = 60, ≤ Min(32*6.7, 300) = 215 [cl. 10.2.2]	85	**Pass**
Bolt gauge (mm)	≥ 2.5*24 = 60, ≤ Min(32*6.7, 300) = 215 [cl. 10.2.2]	0	
End distance (mm)	≥ 1.7*26 = 44, ≤ 12*6.7 = 80.4 [cl. 10.2.4]	50	**Pass**
Edge distance (mm)	≥ 1.7*26 = 44, ≤ 12*6.7 = 80.4 [cl. 10.2.4]	50	**Pass**
Block shear capacity (kN)	≥ 135	V_{db} = 253	**Pass**
Plate thickness (mm)	(5*135*1000)/(270*250.0) = 10 [Owens and Cheal, 1989]	10	**Pass**
Plate height (mm)	≥ 0.6*300=180.0, ≤ 300-9-15-10=242.0 [cl. 10.2.4, Insdag Detailing Manual, 2002]	270	**Fail**
Plate width (mm)		100	
Plate moment	(2*65.217*85^2)/(85*1000) =	M_d = (1.2*250.0*Z)/(1000*1.1) = 33.14	**Pass**

capacity (kNm)	8.1	[cl. 8.2.1.2]	
Effective weld length on each side (mm)		270-2*8 = 254	
Weld strength (kN/mm)	$\sqrt{[(8100*6)/(2*254^2)]}^2 + [135/(2*254)]^2$ = 0.461	f_v= (0.7*8*410)/(√3*1.25) = 1.06 [cl. 10.5.7]	**Pass**
Weld thickness (mm)	Max((0.461*1000*√3* 1.25)/(0.7 * 410),10* 0.8) = 8.0 [cl. 10.5.7, Insdag Detailing Manual, 2002]	8	**Pass**

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Views

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Additional Comments	A sample design report!