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Company Name	Fossee	Project Title	Project 4
Group/Team Name	Osdag	Subtitle	
Designer	Engineer	Job Number	123456
Date	05 /06 /2016	Method	Limit State Design (No Earthquake Load)

Design Conclusion	
Finplate	Pass
Finplate	
Connection Properties	
Connection	
Connection Title	Single Finplate
Connection Type	Shear Connection
Connection Category	
Connectivity	Column flange-Beam web
Beam Connection	Bolted
Column Connection	Welded
Loading (Factored Load)	
Shear Force (kN)	200
Components	
Column Section	ISSC 200
Material	Fe 410
Beam Section	ISMB 400
Material	Fe 410
Hole	STD
Plate Section	250X80X16
Thickness (mm)	16
Width (mm)	80
Depth (mm)	250
Hole	STD
Weld	
Type	Double Fillet
Size (mm)	13
Bolts	
Type	HSFG
Grade	8.8
Diameter (mm)	12
Bolt Numbers	7
Columns (Vertical Lines)	1
Bolts Per Column	7
Gauge (mm)	0
Pitch (mm)	31
End Distance (mm)	30
Edge Distance (mm)	30
Assembly	
Column-Beam Clearance (mm)	20

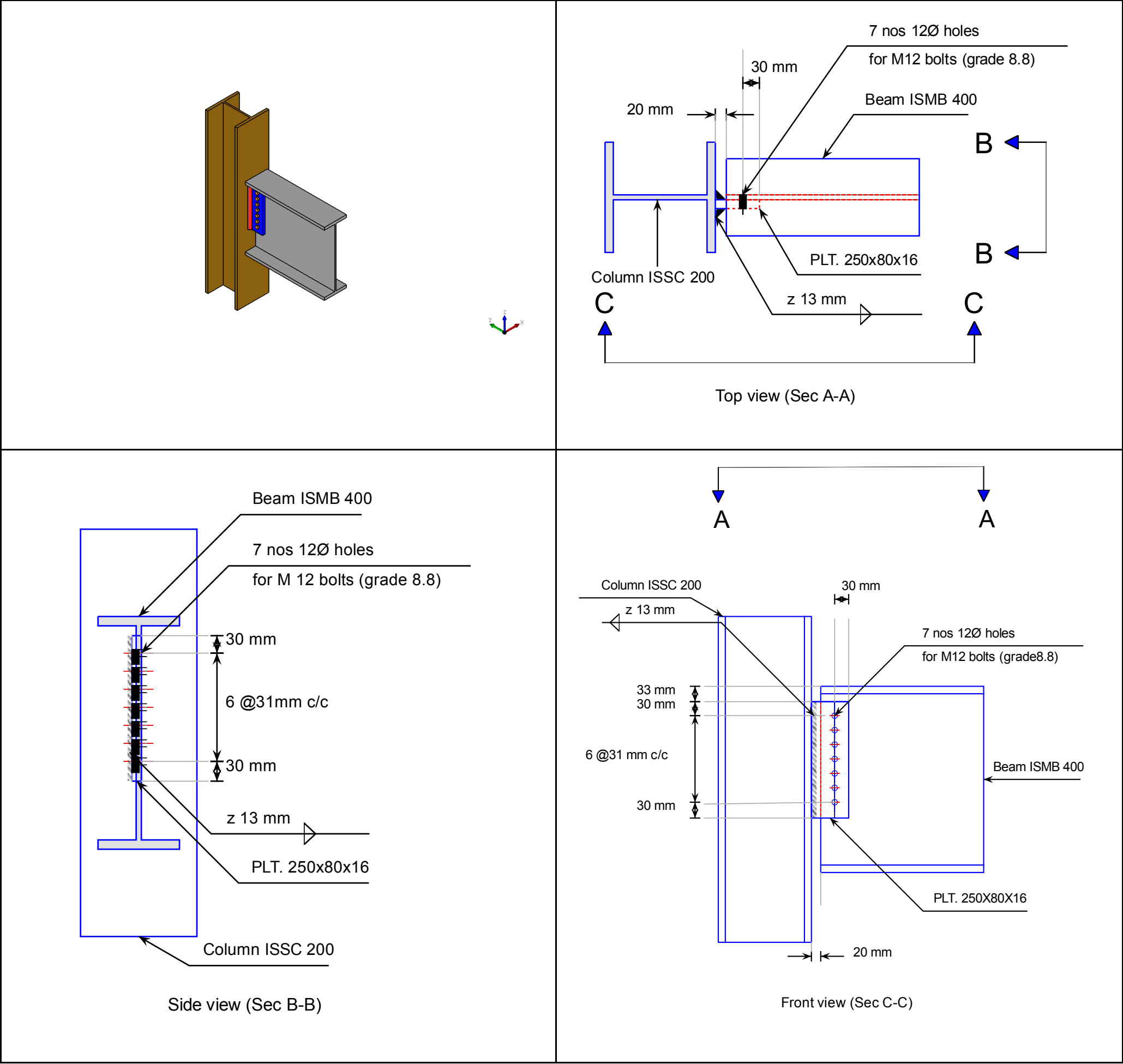
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Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsb} = (800*0.6126*12*12)/(\sqrt{3}*1.25*1000) = 31.223$ [cl. 10.3.3]	
Bolt bearing capacity (kN)		$V_{dpb} = (2.5*0.519*12*8.9*410)/(1.25*1000) = 45.452$ [cl. 10.3.4]	
Bolt capacity (kN)		Min (31.223, 45.452) = 31.223	
No. of bolts	200/31.223 = 6.4	7	Pass
No.of column(s)	≤ 2	1	
No. of bolts per column		7	
Bolt pitch (mm)	$\geq 2.5*12 = 30, \leq \text{Min}(32*8.9, 300) = 285$ [cl. 10.2.2]	31	Pass
Bolt gauge (mm)	$\geq 2.5*12 = 30, \leq \text{Min}(32*8.9, 300) = 285$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7*13 = 22.1, \leq 12*8.9 = 106.8$ [cl. 10.2.4]	30	Pass
Edge distance (mm)	$\geq 1.7*13 = 22.1, \leq 12*8.9 = 106.8$ [cl. 10.2.4]	30	Pass
Block shear capacity (kN)	≥ 200	$V_{db} = 467$	Pass
Plate thickness (mm)	$(5*200*1000)/(250*250) = 16.0$ [Owens and Cheal, 1989]	16	Pass
Plate height (mm)	$\geq 0.6*400=240.0, \leq 400-16-14-10=330.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	250	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2*31.223*31^2)/(31*1000) = 11.99$	$M_d = (1.2*250*Z)/(1000*1.1) = 45.45$ [cl. 8.2.1.2]	Pass
Effective weld length (mm)		250-2*16 = 218	
Weld strength (kN/mm)	$\sqrt{[(11990*6)/(2*218^2)]^2 + [200/(2*218)]^2} = 0.885$	$f_v = (0.7*13*410)/(\sqrt{3}*1.25) = 2.121$ [cl. 10.5.7]	Pass
Weld thickness (mm)	$\text{Max}((0.885*1000*\sqrt{3}*1.25)/(0.7*410), 16*0.8) = 12.8$ [cl. 10.5.7, Insdag Detailing Manual,	13	Pass

	2002]		
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Views



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Additional Comments		This connection was designed to demonstrate the functionality of Osdag	