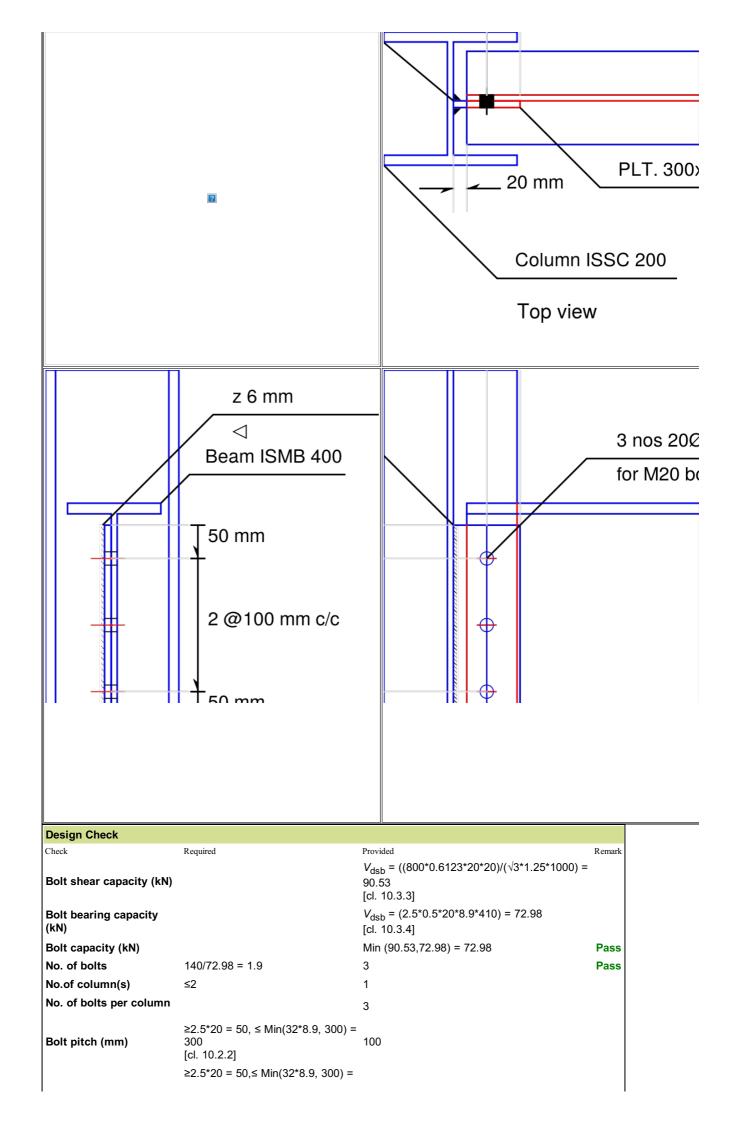




Project Title Finplate Connection Company Osdag Designer Subhrajit Dutta Job Number test_1 Design Code IS 800:2007 Method Limit state design (LSD) Design Conclusion Finplate Connection Properties Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Type Column Web Beam Web Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) Shear Force (kN) Shear Force (kN) 140 Column Section Material Fe 410 Beam Section ISMB 400 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10	Project Cummery	Date:12/01/2016				
Company Osdag Designer Subhrajit Dutta Job Number test_1 Design Code IS 800:2007 Method Limit state design (LSD) Design Conclusion Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Type Shear Connection Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components Column Section ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 <t< td=""><td></td><td>Einnlote Connection</td></t<>		Einnlote Connection				
Designer Subhrajit Dutta Job Number test_1 Design Code IS 800:2007 Method Limit state design (LSD) Design Conclusion Finplate Pass Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connectivity Column Web Beam Web Beam Connection Bolted Beam Connection Welded Loading (Factored Load) Welded Shear Force (kN) 140 Components ISSC 200 Column Section ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X1000 Thickness (mm) 10 Width (mm) 300 Depth (mm) 300 Hole STD Weld Type 50x10 Eillet	1	•				
Job Number test_1 Design Code IS 800:2007 Method Limit state design (LSD) Design Conclusion Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Type Column Web Beam Web Connection Type Column Web Beam Web Beam Connection Bolted Connection Category Connection Bolted Column Onnection Welded Loading (Factored Load) Shear Force (kN) 140 Components Column Section ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Beam Section PLT 300X10X1000 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300		_				
Design Code IS 800:2007 Method Limit state design (LSD) Design Conclusion Finplate Pass Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Category Connection Category Column Web Beam Web Beam Connection Bolted Beam Connection Welded Loading (Factored Load) The are Force (kN) Shear Force (kN) 140 Components Column Section ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Beam Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Bolts		-				
Method Limit state design (LSD) Design Conclusion Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Category Connectivity Column Web Beam Web Beam Connection Bolted Column Connection Welded Loading (Factored Load) I 40 Shear Force (kN) 140 Column Section I 5SC 200 Material Fe 410 Beam Section I 5MB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Puber (mm) 300 Hole Type Double Fillet Folton 6 Bolts		_				
Pass Pass						
Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connection Category Column Web Beam Web Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) Tuto Shear Force (kN) 140 Components SSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts		Limit state design (LSD)				
Finplate Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connectivity Column Web Beam Web Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts		Page				
Connection Properties Connection Title Single Finplate Connection Type Shear Connection Connectivity Column Web Beam Web Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts	-	Pass				
Connection Single Finplate Connection Type Shear Connection Connectivity Column Web Beam Web Beam Connection Bolted Beam Connection Bolted Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts	-					
Connection Title Single Finplate Connection Type Shear Connection Connectivity Column Web Beam Web Beam Connection Bolted Beam Connection Welded Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts	-					
Connection Type Connectivity Connectivity Connectivity Column Web Beam Web Beam Connection Beam Connection Beam Connection Beam Connection Beam Connection Boilted Column Connection Welded Loading (Factored Load) Shear Force (kN) Components Column Section Material Beam Section Material Fe 410 Beam Section ISMB 400 Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) Hole Width (mm) Depth (mm) Depth (mm) Hole Type Size (mm) Boilts		Single Finalete				
Connection Category Column Web Beam Web Beam Connection Bolted Beam Connection Welded Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X10X Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts						
Connectivity Beam Connection Beam Connection Beam Connection Beam Connection Column Connection Welded Loading (Factored Load) Shear Force (kN) 140 Components Column Section Material Beam Section Material Hole Hole STD Plate Section PLT 300X10X100 Thickness (mm) Width (mm) Depth (mm) Depth (mm) Hole Type Size (mm) Botts Column Web Beam Web Bolted Column Web Beam Web Bolted Bo		Snear Connection				
Beam Connection Bolted Beam Connection Welded Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts		Caluma Wat Barra Wat				
Beam Connection Bolted Column Connection Welded Loading (Factored Load) Id0 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts						
Column Connection Welded Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts						
Loading (Factored Load) 140 Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts						
Shear Force (kN) 140 Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts 6		Welded				
Components ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts Bolts						
Column Section ISSC 200 Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Double Fillet Size (mm) 6 Bolts		140				
Material Fe 410 Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) Double Fillet Bolts						
Beam Section ISMB 400 Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts						
Material Fe 410 Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts 6						
Hole STD Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) Double Fillet Bolts 6	Beam Section					
Plate Section PLT 300X10X100 Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) 6 Bolts	Material	Fe 410				
Thickness (mm) 10 Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) Double Fillet Bolts 6						
Width (mm) 10 Depth (mm) 300 Hole STD Weld Type Size (mm) Double Fillet Bolts 6		PLT 300X10X100				
Depth (mm) 300 Hole STD Weld Type Size (mm) Double Fillet 6 Bolts		10				
Hole STD Weld Type Double Fillet Size (mm) 6 Bolts		10				
Weld Type Double Fillet Size (mm) 6 Bolts	Depth (mm)	300				
Type Double Fillet Size (mm) 6 Bolts	Hole	STD				
Size (mm) 6 Bolts	Weld					
Bolts	Туре	Double Fillet				
	Size (mm)	6				
Type HSFG	Bolts					
	Туре	HSFG				
Grade 8.8	Grade	8.8				
Diameter (mm) 20	Diameter (mm)	20				
Bolt Numbers 3	Bolt Numbers	3				
Columns (Vertical Lines) 1		1				
Bolts Per Column 3	Bolts Per Column	3				
Gauge (mm) 0	Gauge (mm)	0				
Pitch (mm) 100	Pitch (mm)	100				
End Distance (mm) 50	End Distance (mm)	50				
Edge Distance (mm) 50	Edge Distance (mm)	50				
Assembly	Assembly					
Column-Beam Clearance (mm) 20	Column-Beam Clearance (mm)	20				
Views	Views					



Bolt gauge (mm)	300 [cl. 10	0.2.2]	0		
End distance (mm)	≥1.7* 22 = 37.4,≤12*8.9 = 106.9 [cl. 10.2.4]		50		
Edge distance (mm)	≥ 1.7* 22 = 37.4,≤12*8.9 = 106.9 [cl. 10.2.4]		50		Pass
Plate thickness (mm)	(5*140*1000)/(300*250)= 9.33		10		
Plate height (mm)			300		
Plate width (mm)			100		
Plate moment capacity (kNm)	$(2*90.5*100^2)/100 = 18.1$		$M_{\rm d}$ =1.2*250* Z = 40.9 [cl. 8.2.1.2]		Pass
Effective weld length (mm)			300 - 2*6 = 288		
Weld strength (kN/mm)	$\sqrt{[(18100^*6)/(2^*288)^2]^2} + [140/(2^*288)]^2 = 0.699$		$f_{\rm V}$ =(0.7*6*410)/($\sqrt{3}$ *1.25) = 0.795 [cl. 10.5.7]		Pass
Weld thickness (mm)		9*√3*1.25)/(0.7*410)=5.27 0.5.7]	6		Pass
Design Check					
Check		Required		Provided	
Bolt shear capacity (kN)		$V_{\rm dsb} = ((800^*0.6123^*20^*20)/($ [cl. 10.3.3]	√3*1.25*1000) = 90.53		
Bolt bearing capacity (kN	l)	$V_{\text{dsb}} = (2.5*0.5*20*8.9*410) =$ [cl. 10.3.4]	= 72.98		
Bolt Capacity (kN)		Min (90.53,72.98) = 72.98			Pass
No. of bolts		140/72.98 = 1.9		3	
No.of column(s)		≤2		1	
No. of bolts per column				3	
Bolt pitch (mm)		\geq 2.5*20 = 50, \leq Min(32*8.9, 3 [cl. 10.2.2]	300) = 300	100	
Bolt gauge (mm)		\geq 2.5*20 = 50, \leq Min(32*8.9, 36 [cl. 10.2.2]	00) = 300	0	
End distance (mm)		≥1.7* 22 = 37.4,≤12*8.9 = 10 [cl. 10.2.4]	6.9	50	
Edge distance (mm)		$\geq 1.7^* \ 22 = 37.4, \leq 12^* 8.9 = 10$ [cl. 10.2.4]	06.9	50	
Plate thickness (mm)		9.33		10	
Plate height (mm)				300	
Plate width (mm)				100	
Plate moment capacity (k	(Nm)	18.1		$M_{\rm d}$ =1.2*250*Z = 40.9 [cl. 8.2.1.2])
					Pass
Weld thickness (mm)		6		6	
Weld strength (kN/mm)		0.699		f_{v} =(6*250)/($\sqrt{3}$ *1.25*1 = 0.96 [cl. 10.5.7]	000)
				•	Pass
					. 433