



Company Name	mukund	Project Title	workshop
Group/Team Name	mukund	Subtitle	
Designer	mukund	Job Number	1234
Date	04 /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) 160

Components

Column Section ISSC 200

Material Fe 410

Beam Section ISMB 400

Material Fe 410

Hole STD

Plate Section 320X100X10

Thickness (mm) 10

Width (mm) 100

Depth (mm) 320

Hole STD

Weld

Type Double Fillet

Size (mm) 8

Bolts

Type HSFG

Grade 8.8

Diameter (mm) 20

Bolt Numbers 3

Columns (Vertical Lines) 1

Bolts Per Column 3

Gauge (mm)	0
Pitch (mm)	120
End Distance (mm)	40
Edge Distance (mm)	40
Assembly	
Column-Beam Clearance (mm)	20



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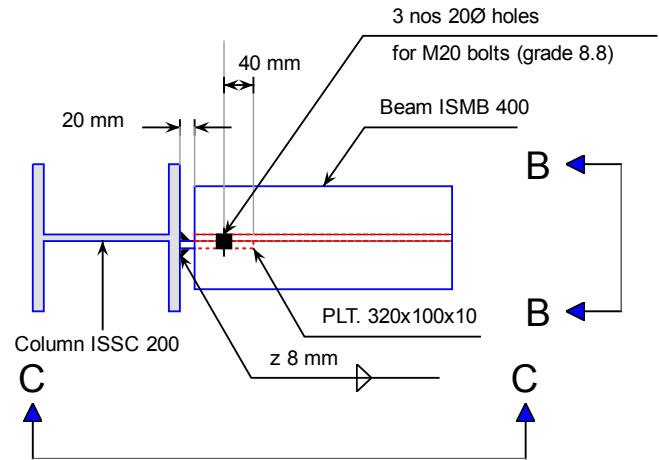
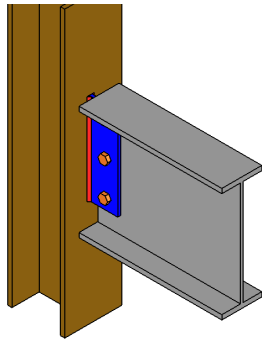
Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsb} = (800 \times 0.6126 \times 20 \times 20) / (\sqrt{3} \times 1.25 \times 1000)$ $= 90.529$ [cl. 10.3.3]	
Bolt bearing capacity (kN)		$V_{dpb} = (2.5 \times 0.508 \times 20 \times 8.9 \times 410) / (1.25 \times 1000)$ $= 74.148$ [cl. 10.3.4]	
Bolt capacity (kN)		Min (90.529, 74.148) = 74.148	
No. of bolts	160/74.148 = 2.2	3	Pass
No. of column(s)	≤ 2	1	
No. of bolts per column		3	
Bolt pitch (mm)	$\geq 2.5 \times 20 = 50, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	120	Pass
Bolt gauge (mm)	$\geq 2.5 \times 20 = 50, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7 \times 22 = 37.4, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	40	Pass
Edge distance (mm)	$\geq 1.7 \times 22 = 37.4, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	40	Pass
Block shear capacity (kN)	≥ 160	$V_{db} = 453$	Pass
Plate thickness (mm)	$(5 \times 160 \times 1000) / (320 \times 250) = 10.0$ [Owens and Cheal, 1989]	10	Pass
Plate height (mm)	$\geq 0.6 \times 400 = 240.0, \leq 400 - 16 - 14 - 10 = 330.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	320	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2 \times 90.529 \times 120^2) / (120 \times 1000) = 14.485$	$M_d = (1.2 \times 250 \times Z) / (1000 \times 1.1) = 46.55$ [cl. 8.2.1.2]	Pass
Effective weld length (mm)		$320 - 2 \times 8 = 304$	

Weld strength (kN/mm)	$\sqrt{[(14485 \cdot 6)/(2 \cdot 304^2)]^2 + [160/(2 \cdot 304)]^2}$ = 0.539	$f_v = (0.7 \cdot 8 \cdot 410)/(\sqrt{3} \cdot 1.25)$ = 1.06 [cl. 10.5.7]	Pass
Weld thickness (mm)	$\text{Max}((0.539 \cdot 1000 \cdot \sqrt{3} \cdot 1.25)/(0.7 \cdot 410), 10 \cdot 0.8) = 8.0$ [cl. 10.5.7, Insdag Detailing Manual, 2002]	8	Pass

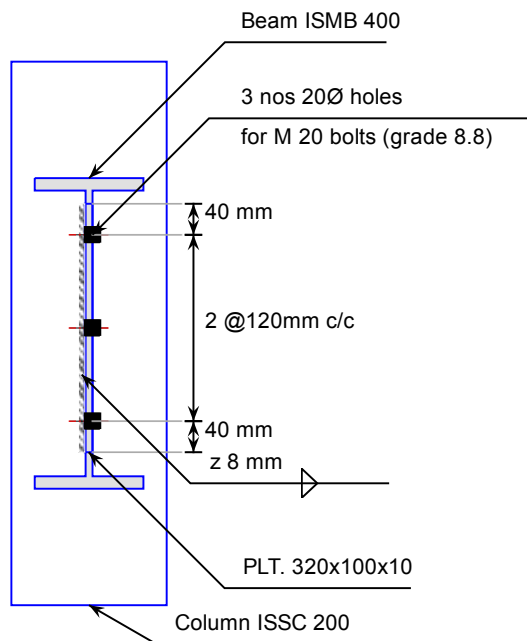


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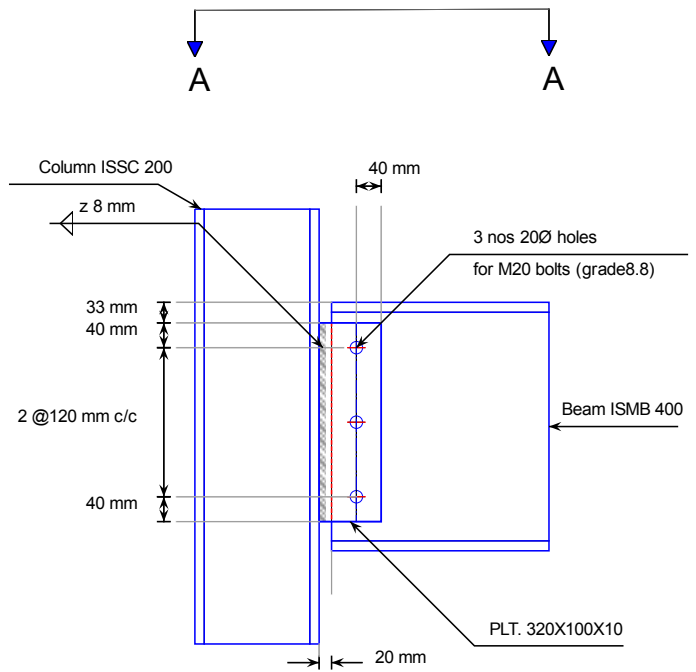
Views



Top view (Sec A-A)



Side view (Sec B-B)



Front view (Sec C-C)



Created with

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Additional Comments	
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