

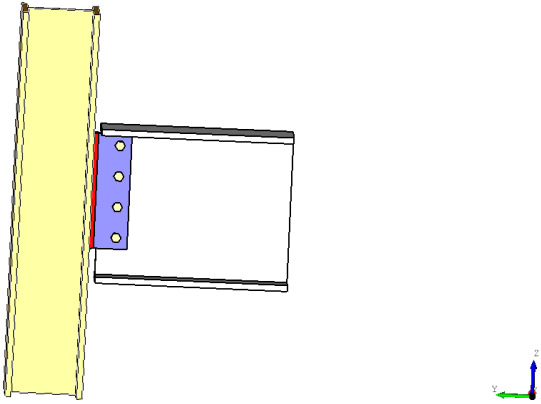
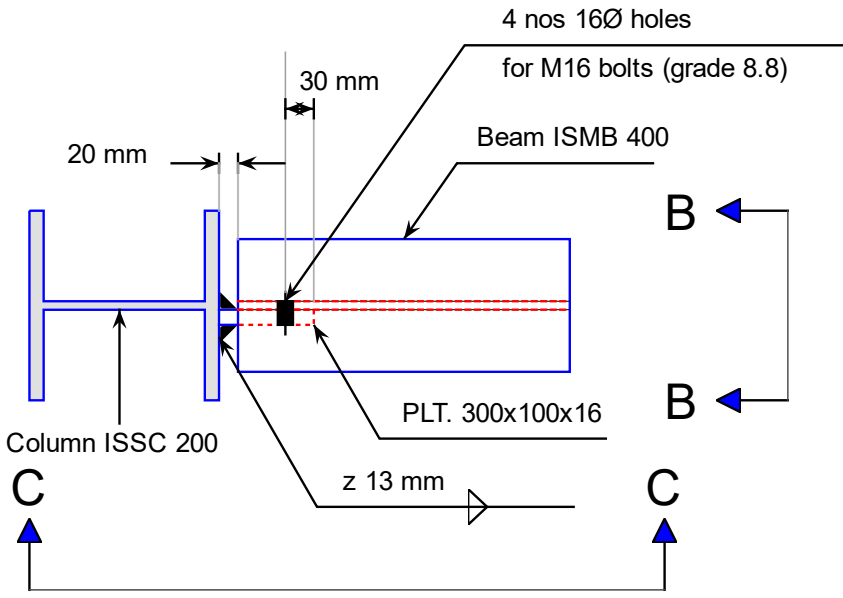
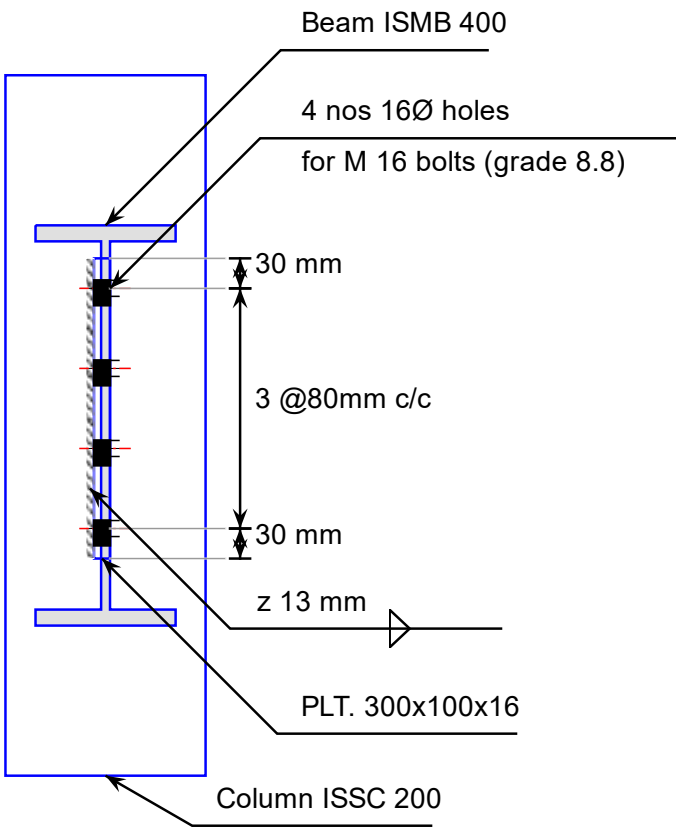
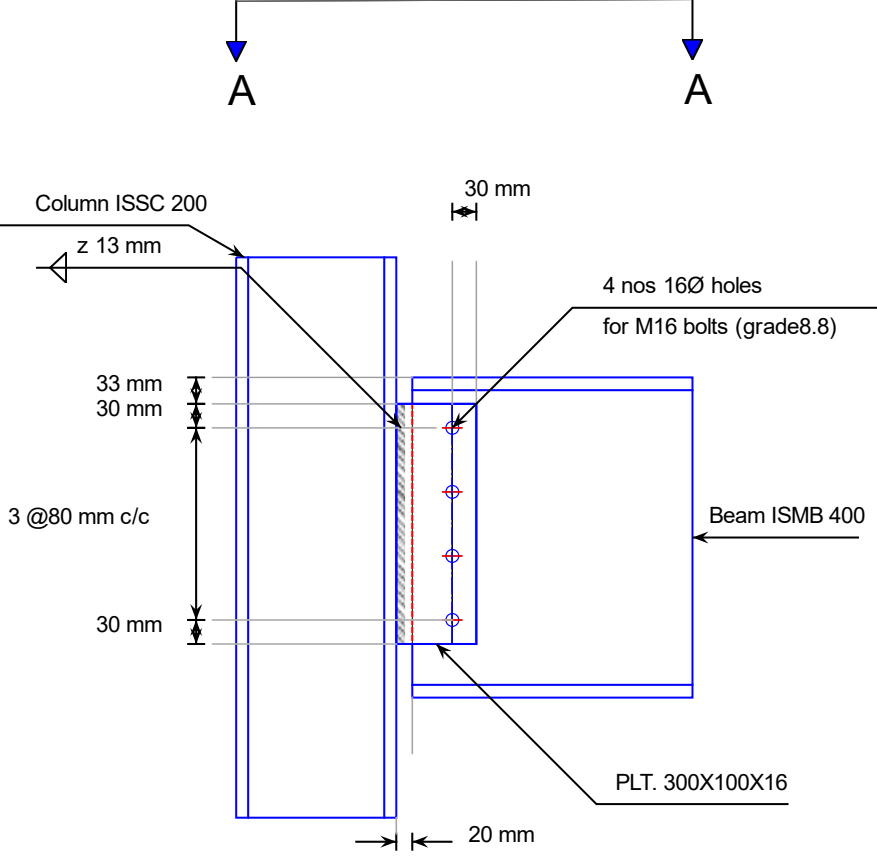
<b>Company Name</b>	ongc	<b>Project Title</b>	
<b>Group/Team Name</b>	IEOT	<b>Subtitle</b>	
<b>Designer</b>	Harsha Gamidi	<b>Job Number</b>	
<b>Date</b>	06 /06 /2016	<b>Method</b>	Limit State Design (No Earthquake Load)



<b>Design Conclusion</b>	
<b>Finplate</b>	<b>Pass</b>
<b>Finplate</b>	
<b>Connection Properties</b>	
<b>Connection</b>	
Connection Title	Single Finplate
Connection Type	Shear Connection
<b>Connection Category</b>	
Connectivity	Column flange-Beam web
Beam Connection	Bolted
Column Connection	Welded
<b>Loading (Factored Load)</b>	
Shear Force (kN)	200
<b>Components</b>	
<b>Column Section</b>	ISSC 200
Material	Fe 410
<b>Beam Section</b>	ISMB 400
Material	Fe 410
Hole	STD
<b>Plate Section</b>	300X100X16
Thickness (mm)	16
Width (mm)	100
Depth (mm)	300
Hole	STD
<b>Weld</b>	
Type	Double Fillet
Size (mm)	13
<b>Bolts</b>	
Type	HSFG
Grade	8.8
Diameter (mm)	16
Bolt Numbers	4
Columns (Vertical Lines)	1
Bolts Per Column	4
Gauge (mm)	0
Pitch (mm)	80
End Distance (mm)	30
Edge Distance (mm)	30
<b>Assembly</b>	
<b>Column-Beam Clearance (mm)</b>	20

<b>Company Name</b>	<b>ongc</b>	<b>Project Title</b>	
<b>Group/Team Name</b>	<b>IEOT</b>	<b>Subtitle</b>	
<b>Designer</b>	<b>Harsha Gamidi</b>	<b>Job Number</b>	
<b>Date</b>	<b>06 /06 /2016</b>	<b>Method</b>	<b>Limit State Design (No Earthquake Load)</b>

Design Check			
Check	Required	Provided	Remark
<b>Bolt shear capacity (kN)</b>		$V_{dsb} = (800 \times 0.6126 \times 16 \times 16) / (\sqrt{3} \times 1.25 \times 1000) = 58.012$ [cl. 10.3.3]	
<b>Bolt bearing capacity (kN)</b>		$V_{dpb} = (2.5 \times 0.491 \times 16 \times 8.9 \times 410) / (1.25 \times 1000) = 57.333$ [cl. 10.3.4]	
<b>Bolt capacity (kN)</b>		Min (58.012, 57.333) = 57.333	
<b>No. of bolts</b>	$200 / 57.333 = 3.5$	4	Pass
<b>No. of column(s)</b>	$\leq 2$	1	
<b>No. of bolts per column</b>		4	
<b>Bolt pitch (mm)</b>	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	80	Pass
<b>Bolt gauge (mm)</b>	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	0	
<b>End distance (mm)</b>	$\geq 1.7 \times 18 = 30.6, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	30	Pass
<b>Edge distance (mm)</b>	$\geq 1.7 \times 18 = 30.6, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	30	Pass
<b>Block shear capacity (kN)</b>	$\geq 200$	$V_{db} = 666$	Pass
<b>Plate thickness (mm)</b>	$(5 \times 200 \times 1000) / (300 \times 250) = 13.33$ [Owens and Cheal, 1989]	16	Pass
<b>Plate height (mm)</b>	$\geq 0.6 \times 400 = 240.0, \leq 400 - 16 - 14 - 10 = 330.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	300	Pass
<b>Plate width (mm)</b>		100	
<b>Plate moment capacity (kNm)</b>	$(2 \times 58.012 \times 80^2) / (80 \times 1000) = 18.564$	$M_d = (1.2 \times 250 \times Z) / (1000 \times 1.1) = 65.45$ [cl. 8.2.1.2]	Pass
<b>Effective weld length (mm)</b>		$300 - 2 \times 16 = 268$	
<b>Weld strength (kN/mm)</b>	$\sqrt{[(18564 \times 6) / (2 \times 268^2)]^2 + [200 / (2 \times 268)]^2} = 0.861$	$f_v = (0.7 \times 13 \times 410) / (\sqrt{3} \times 1.25) = 2.121$ [cl. 10.5.7]	Pass
<b>Weld thickness (mm)</b>	$\text{Max}((0.861 \times 1000 \times \sqrt{3} \times 1.25) / (0.7 \times 410), 16 \times 0.8) = 12.8$ [cl. 10.5.7, Insdag Detailing Manual, 2002]	13	Pass

Company Name	ongc	Project Title	
Group/Team Name	IEOT	Subtitle	
Designer	Harsha Gamidi	Job Number	
Date	06 /06 /2016	Method	Limit State Design (No Earthquake Load)

Views			
		 <p>Top view (Sec A-A)</p>	
 <p>Side view (Sec B-B)</p>		 <p>Front view (Sec C-C)</p>	

			
Company Name	ongc	Project Title	
Group/Team Name	IEOT	Subtitle	
Designer	Harsha Gamidi	Job Number	
Date	06 /06 /2016	Method	Limit State Design (No Earthquake Load)
Additional Comments			