



		Created with 	
Company Name	L&T	Project Title	Design of Fin Connection
Group/Team Name	HCIC	Subtitle	
Designer	Rajib Mandal	Job Number	040616
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
----------------------------	----

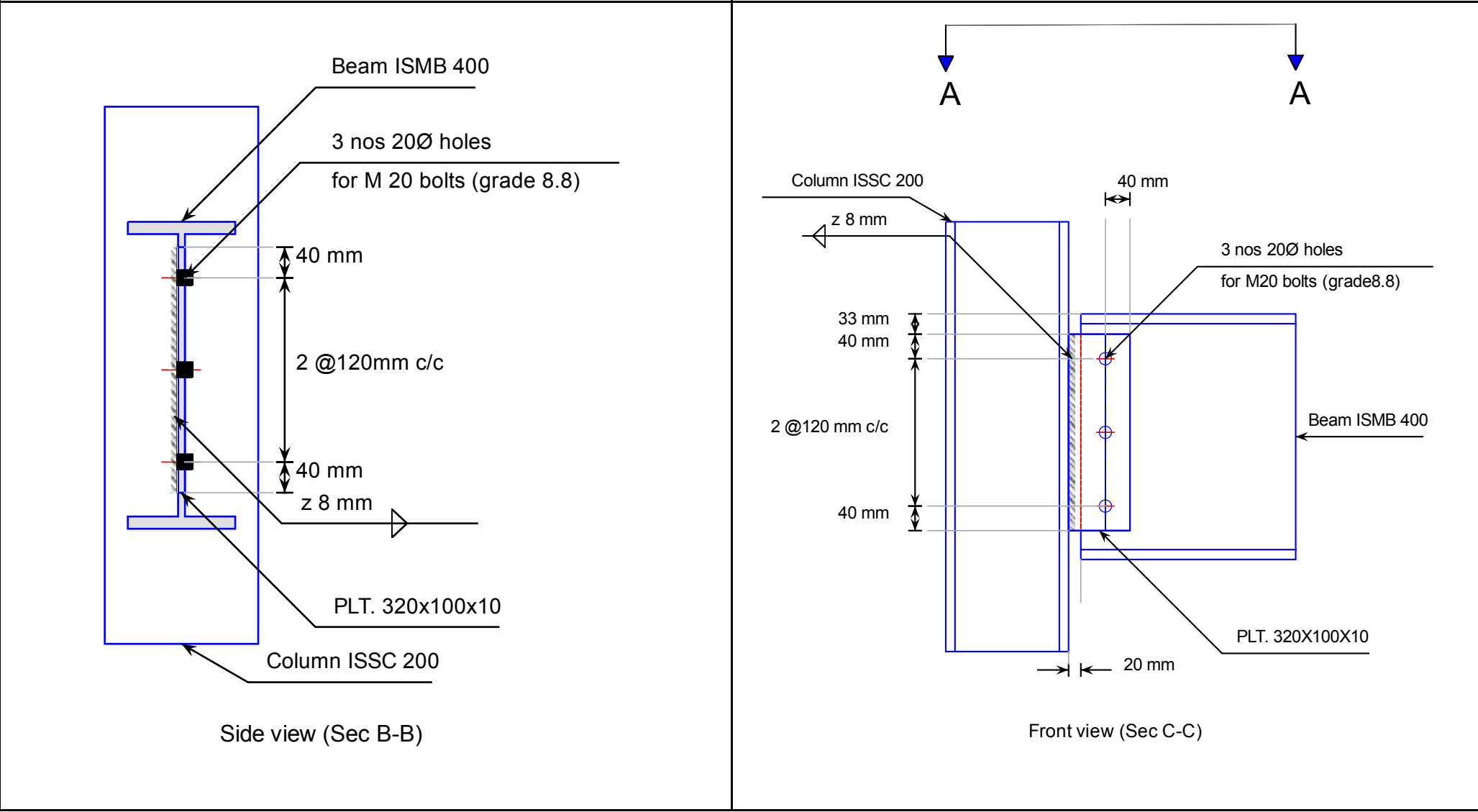
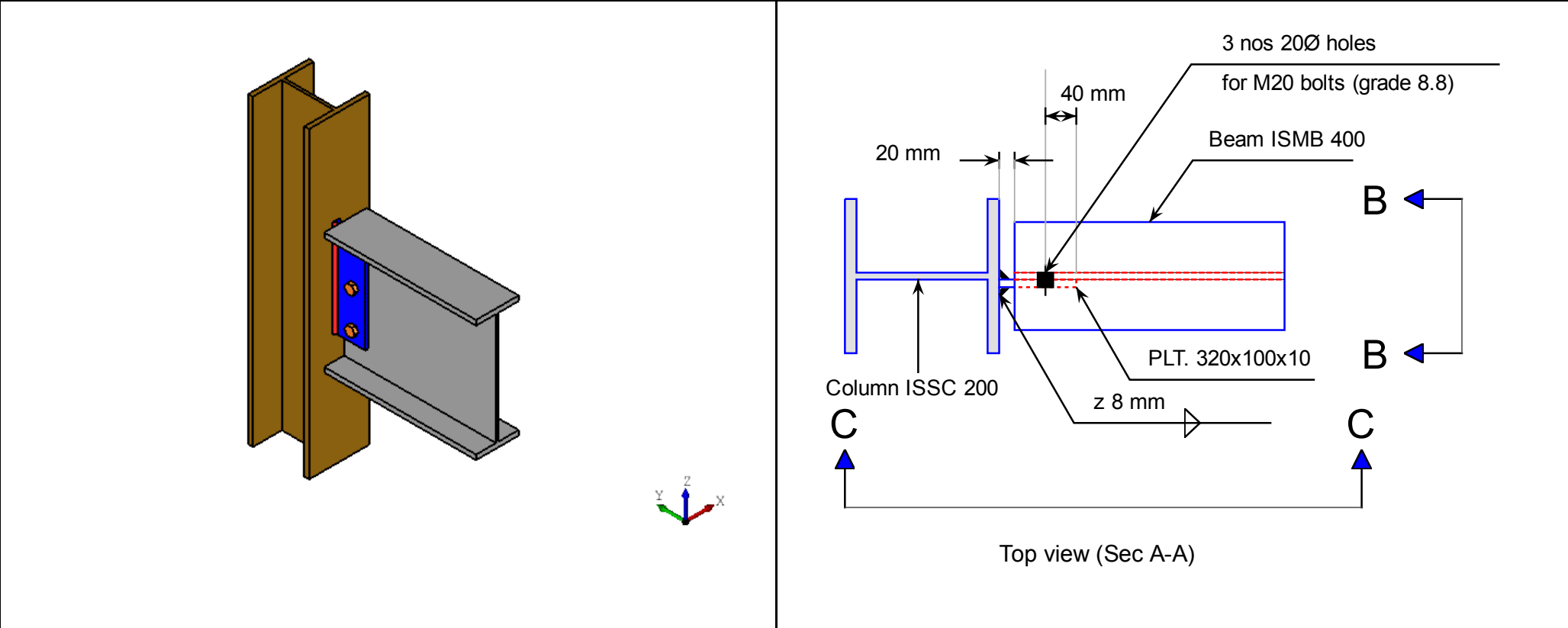
		<div> <div>  <div> <div>Osdag</div> <div>Created with</div> </div> </div> </div>	
Company Name	L&T	Project Title	Design of Fin Connection
Group/Team Name	HCIC	Subtitle	
Designer	Rajib Mandal	Job Number	040616
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)


Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsb} = (800*0.6126*20*20)/(\sqrt{3}*1.25*1000) = 90.529$ [cl. 10.3.3]	
Bolt bearing capacity (kN)		$V_{dpb} = (2.5*0.508*20*8.9*410)/(1.25*1000) = 74.148$ [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)	$\geq 2.5*20 = 50, \leq \text{Min}(32*8.9, 300) = 285$ [cl. 10.2.2]	120	Pass
Bolt gauge (mm)	$\geq 2.5*20 = 50, \leq \text{Min}(32*8.9, 300) = 285$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7*22 = 37.4, \leq 12*8.9 = 106.8$ [cl. 10.2.4]	40	Pass
Edge distance (mm)	$\geq 1.7*22 = 37.4, \leq 12*8.9 = 106.8$ [cl. 10.2.4]	40	Pass
Block shear capacity (kN)	≥ 160	$V_{db} = 453$	Pass
Plate thickness (mm)	$(5*160*1000)/(320*250) = 10.0$ [Owens and Cheal, 1989]	10	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]	320	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2*90.529*120^2)/(120*1000) = 14.485$	$M_d = (1.2*250*Z)/(1000*1.1) = 46.55$ [cl. 8.2.1.2]	Pass
Effective weld length (mm)		320-2*8 = 304	
Weld strength (kN/mm)	$\sqrt{[(14485*6)/(2*304^2)]^2 + [160/(2*304)]^2} = 0.539$	$f_v = (0.7*8*410)/(\sqrt{3}*1.25) = 1.06$ [cl. 10.5.7]	Pass
Weld thickness (mm)	$\text{Max}((0.539*1000*\sqrt{3}*1.25)/(0.7*410), 10*0.8) = 8.0$ [cl. 10.5.7, Insdag Detailing Manual,	8	Pass

	2002]		
--	-------	--	--

		<div> <div>  <div> <div>Osdag</div> <div>Created with</div> </div> </div> </div>	
Company Name	L&T	Project Title	Design of Fin Connection
Group/Team Name	HCIC	Subtitle	
Designer	Rajib Mandal	Job Number	040616
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Views



		Created with  <b>Osdag</b>	
<b>Company Name</b>	<b>L&amp;T</b>	<b>Project Title</b>	<b>Design of Fin Connection</b>
<b>Group/Team Name</b>	<b>HCIC</b>	<b>Subtitle</b>	
<b>Designer</b>	<b>Rajib Mandal</b>	<b>Job Number</b>	<b>040616</b>
<b>Date</b>	<b>04 /06 /2016</b>	<b>Method</b>	<b>Limit State Design (No Earthquake Load)</b>

<b>Additional Comments</b>	
----------------------------	--