


<b>Company Name</b>		<b>Project Title</b>	
<b>Group/Team Name</b>		<b>Subtitle</b>	
<b>Designer</b>		<b>Job Number</b>	
<b>Date</b>	<b>03 /05 /2017</b>	<b>Client</b>	

<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)	100
<b>Components</b>	
<b>Column Section</b>	UC 305 x 305 x 158
Material	Fe 410.0
<b>Beam Section</b>	MB 350
Material	Fe 410.0
Hole	STD
<b>Plate Section</b>	246X80X6
Thickness (mm)	6
Width (mm)	80
Depth (mm)	246
Hole	STD
<b>Weld</b>	
Type	Double Fillet
Size (mm)	6
<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)	62

End Distance (mm)	30
Edge Distance (mm)	30
<b>Assembly</b>	
<b>Column-Beam Clearance (mm)</b>	20

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<b>Design Preferences</b>	
<b>Bolt</b>	
Hole Type	Standard
Hole Clearance	1.0
Material Grade (MPa)	330.0
Slip Factor	0.55
<b>Weld</b>	
Type of Weld	Shop weld
Material Grade (MPa)	410.0
<b>Detailing</b>	
Type of Edges	a - Sheared or hand flame cut
Minimum Edge-End Distance	1.7
Gap (mm)	30.0
<b>Design</b>	
Design Method	Limit State Design

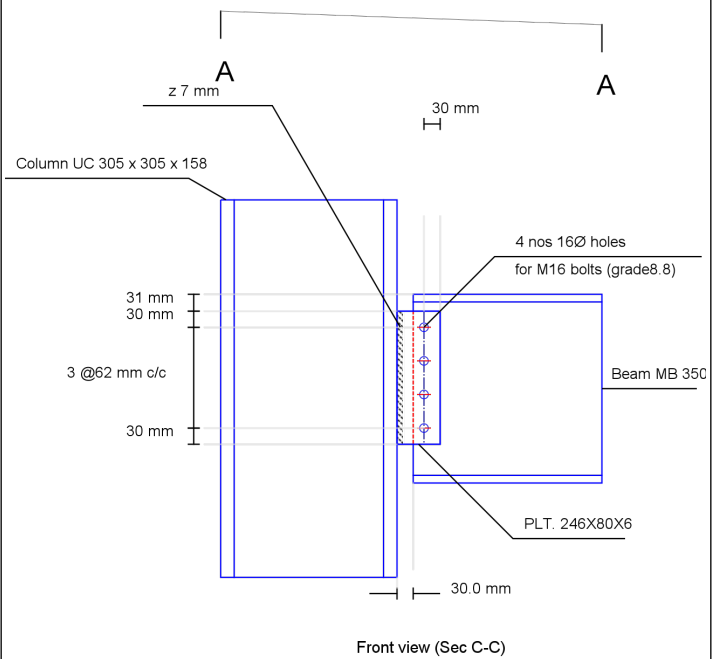
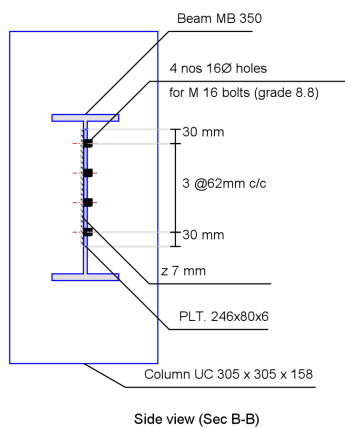
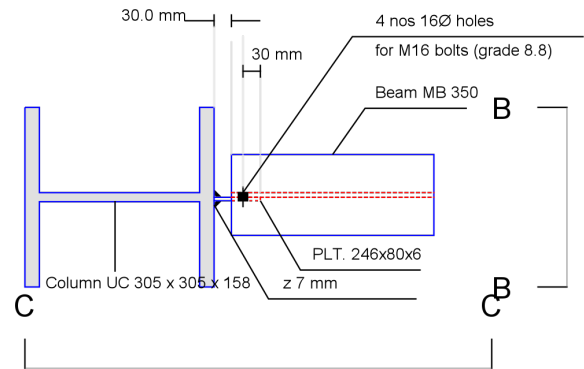
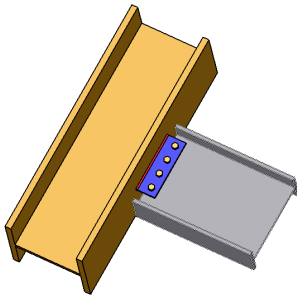
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Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsf} = (800 \times 0.6126 \times 16 \times 16) / (\sqrt{3} \times 1.25 \times 1000)$ = 38.6848 [cl. 10.3.3]	
Bolt bearing capacity (kN)		N/A	
Bolt capacity (kN)		38.6848	Pass
No. of bolts	$100 / 38.6848 = 2.6$	4	Pass
No. of column(s)	$\leq 2$	1	
No. of bolts per column		4	
Bolt pitch (mm)	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 8.1, 300)$ = 260 [cl. 10.2.2]	62	Pass
Bolt gauge (mm)	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 8.1, 300)$ = 260 [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7 \times 18 = 30.6, \leq 12 \times 8.1 = 97.2$ [cl. 10.2.4]	30	Pass
Edge distance (mm)	$\geq 1.7 \times 18 = 30.6, \leq 12 \times 8.1 = 97.2$ [cl. 10.2.4]	30	Pass
Block shear capacity (kN)	$\geq 100$	$V_{db} = 267$	Pass
Plate thickness (mm)	$(5 \times 100 \times 1000) / (246 \times 250.0) = 8.13$ [Owens and Cheal, 1989]	6	Fail
Plate height (mm)	$\geq 0.6 \times 350 = 210.0, \leq 350 - 14 - 14 - 10 = 284.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	246	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2 \times 38.6848 \times 62^2) / (62 \times 1000) = 7.737$	$M_d = (1.2 \times 250.0 \times Z) / (1000 \times 1.1) = 16.5$ [cl. 8.2.1.2]	Pass
Effective weld length (mm)		$246 - 2 \times 6 = 234$	
Weld strength (kN/mm)	$\sqrt{[(7737 \times 6) / (2 \times 234^2)]^2 + [100 / (2 \times 234)]^2}$ = 0.475	$f_v = (0.7 \times 6 \times 410) / (\sqrt{3} \times 1.25)$ = 0.795 [cl. 10.5.7]	Pass

<b>Weld thickness (mm)</b>	$\text{Max}((0.475 \cdot 1000 \cdot \sqrt{3 \cdot 1.25}) / (0.7 \cdot 410), 8 \cdot 0.8) = 6.4$ [cl. 10.5.7, Insdag Detailing Manual, 2002]	6	<b>Fail</b>
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## Views



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<b>Additional Comments</b>			