



<b>Company Name</b>	<b>Pythons &amp; Co</b>	<b>Project Title</b>	<b>A simple block of flats</b>
<b>Group/Team Name</b>	<b>Flying Circus</b>	<b>Subtitle</b>	<b>Abattoir</b>
<b>Designer</b>	<b>Mr. Wiggin</b>	<b>Job Number</b>	<b>1.1.1.3.2</b>
<b>Date</b>	<b>18 /06 /2017</b>	<b>Client</b>	<b>Mr. Tid</b>

<b>Design Conclusion</b>	
<b>Fin Plate</b>	<b>Pass</b>
<b>Fin Plate</b>	
<b>Connection Properties</b>	
<b>Connection</b>	
Connection Title	Single Fin Plate
Connection Type	Shear Connection
<b>Connection Category</b>	
Connectivity	Beam-Beam
Beam Connection	Bolted
Column Connection	Welded
<b>Loading (Factored Load)</b>	
Shear Force (kN)	220
<b>Components</b>	
<b>Column Section</b>	WPB 450x300x99.7
Material	Fe 410.0
<b>Beam Section</b>	UB 356 x 171 x 67
Material	Fe 410.0
Hole	STD
<b>Plate Section</b>	314X90X14
Thickness (mm)	14
Width (mm)	90
Depth (mm)	314
Hole	STD
<b>Weld</b>	
Type	Double Fillet
Size (mm)	12
<b>Bolts</b>	
Type	HSFG
Grade	10.9
Diameter (mm)	24
Bolt Numbers	4
Columns (Vertical Lines)	1
Bolts Per Column	4
Gauge (mm)	0
Pitch (mm)	78

End Distance (mm)	40
Edge Distance (mm)	40
<b>Assembly</b>	
<b>Column-Beam Clearance (mm)</b>	10.0



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### Design Preferences

#### Bolt

Hole Type	Standard
Hole Clearance (mm)	2.0
Material Grade (MPa) (overwrite)	1040.0
Slip factor	0.48

#### Weld

Type of Weld	Shop weld
Material Grade (MPa) (overwrite)	410.0

#### Detailing

Type of Edges	Rolled, machine-flame cut, sawn and planed
Minimum Edge-End Distance	1.5 times the hole diameter
Gap between Beam and Column (mm)	10.0
Are members exposed to corrosive influences?	No

#### Design

Design Method	Limit State Design
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Created with



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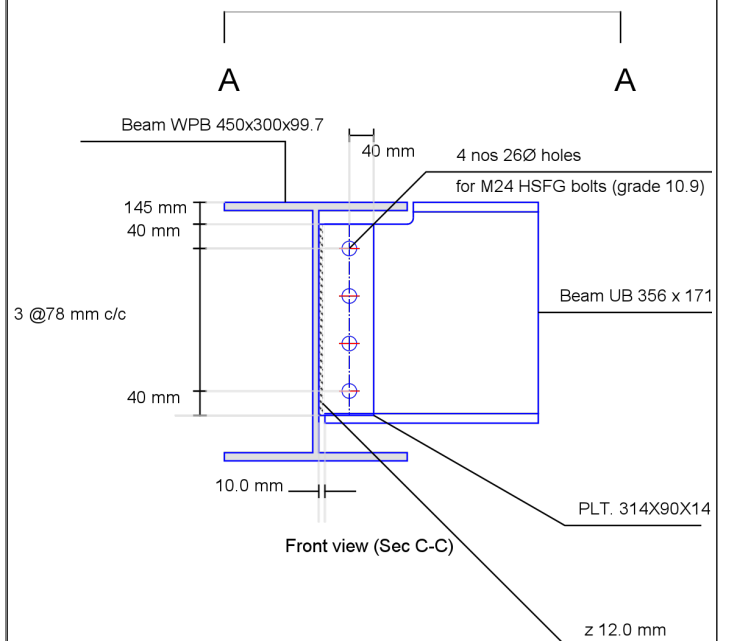
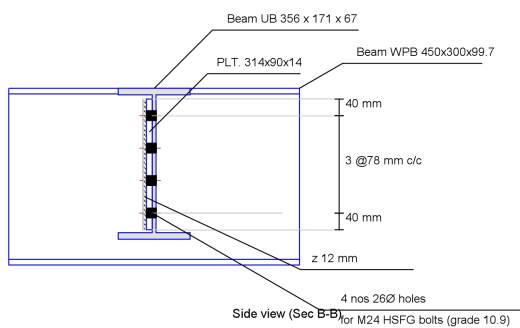
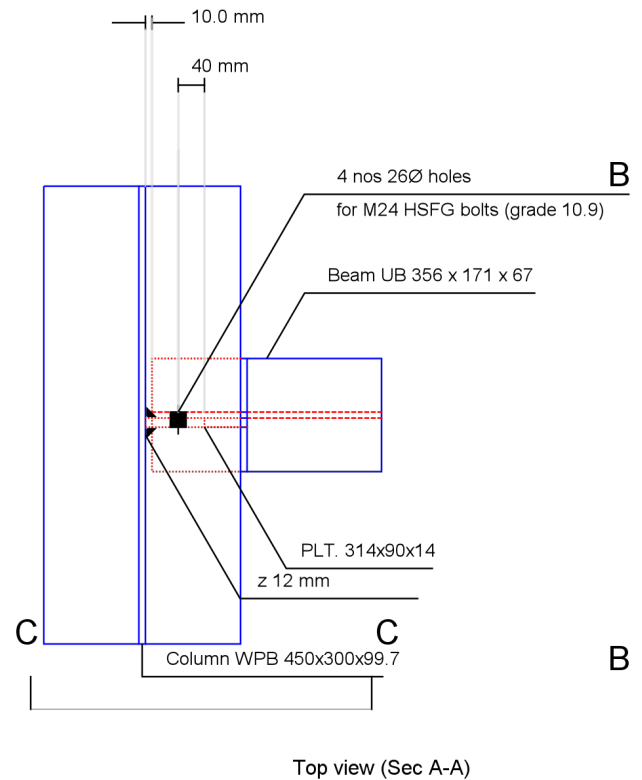
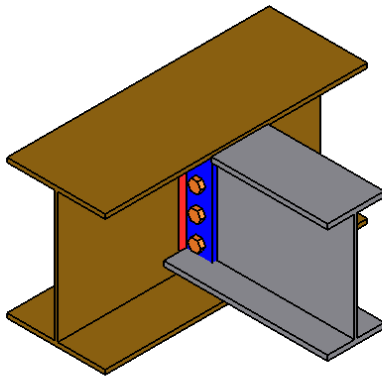
Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsf} = ((0.48 \times 1 \times 1.0 \times 256.984) / (1.25)) = 94.8864$ [cl. 10.4.3]	
Bolt bearing capacity (kN)		N/A	
Bolt capacity (kN)		94.8864	Pass
No. of bolts	$220 / 94.8864 = 2.3$	4	Pass
No. of column(s)	$\leq 2$	1	
No. of bolts per column		4	
Bolt pitch (mm)	$\geq 2.5 \times 24 = 60, \leq \text{Min}(32 \times 9.1, 300) = 292$ [cl. 10.2.2]	78	Pass
Bolt gauge (mm)	$\geq 2.5 \times 24 = 60, \leq \text{Min}(32 \times 9.1, 300) = 292$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.5 \times 26 = 39, \leq 12 \times 9.1 = 109.2$ [cl. 10.2.4]	40	Pass
Edge distance (mm)	$\geq 1.5 \times 26 = 39, \leq 12 \times 9.1 = 109.2$ [cl. 10.2.4]	40	Pass
Block shear capacity (kN)	$\geq 220$	$V_{db} = 367$	Pass
Plate thickness (mm)	$(5 \times 220 \times 1000) / (314 \times 250.0) = 14$ [Owens and Cheal, 1989]	14	Pass
Plate height (mm)	$\geq 0.6 \times 363 = 217.8, \leq 363 - 15 - 10 - 13 - 3 - 5 = 317.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	314	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2 \times 94.8864 \times 78^2) / (78 \times 1000) = 22.773$	$M_d = (1.2 \times 250.0 \times Z) / (1000 \times 1.1) = 62.74$ [cl. 8.2.1.2]	Pass
Effective weld length on each side (mm)		$314 - 2 \times 12 = 290$	
Weld strength (kN/mm)	$\sqrt{[(22773 \times 6) / (2 \times 290^2)]^2 + [220 / (2 \times 290)]^2} = 0.897$	$f_v = (0.7 \times 12 \times 410) / (\sqrt{3} \times 1.25) = 1.591$ [cl. 10.5.7]	Pass

<b>Weld thickness (mm)</b>	$\text{Max}((0.897 \cdot 1000 \cdot \sqrt{3} \cdot 1.25) / (0.7 \cdot 410), 14 \cdot 0.8) = 11.2$ [cl. 10.5.7, Insdag Detailing Manual, 2002]	12	<b>Pass</b>
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## Views





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<b>Additional Comments</b>	
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