



<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>1.2.1.1.2.1</b>
<b>Date</b>	<b>21 /06 /2018</b>	<b>Client</b>	<b>Mr. Tid</b>

**Design Conclusion**

<b>Beam to Beam Spliced Cover Plate</b>	<b>Fail</b>
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**Beam to Beam Spliced Cover Plate**

**Connection Properties**

**Connection**

Connection Title	Beam to Beam Spliced Cover Plate
Connection Type	Moment Connection

**Connection Category**

Connectivity	Bolted
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**Loading (Factored Load)**

Moment (kNm)	225.0
Shear Force (kN)	55.0
Axial Force (kN)	0.0

**Components**

<b>Beam Section</b>	NPB 350x250x79.2
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Material	Fe 410.0
Hole	Over-sized

<b>Flange Splice Plate</b>	1043 X 250 X 14
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Thickness (mm)	14
Height (mm)	1043
Width (mm)	250
Hole	Over-sized

<b>Web Splice Plate</b>	240 X 203 X 6
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Thickness (mm)	6
Height (mm)	240
Width (mm)	203
Hole	Over-sized

**Bolts**

Type	Friction Grip Bolt
Grade	10.9
Diameter (mm)	24

**Flange Splice Plate**

Total no. of Bolts	56
No. of Rows (Parallel to Beam Length; Connecting Each Beam)	7

No. of Columns (Perpendicular to Beam Length; Connecting Each Beam)	2
Gauge (mm)	130
Pitch (mm)	70
End Distance (mm)	50
Edge Distance (mm)	50
<b>Web Splice Plate</b>	
Total no. of Bolts	6
No. of Rows (Parallel to Beam Length; Connecting Each Beam)	3
No. of Columns (Perpendicular to Beam Length; Connecting Each Beam)	1
Gauge (mm)	103
Pitch (mm)	70
End Distance (mm)	50
Edge Distance (mm)	50
<b>Assembly</b>	
<b>Beam-Beam Clearance (mm)</b>	3.0



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**Design Preferences**

**Bolt**

Hole Type	Over-sized
Hole Clearance (mm)	6.0
Material Grade (MPa) (overwrite)	1000.0
Slip Factor	0.33

**Detailing**

Type of Edges	Rolled, machine-flame cut, sawn and planed
Minimum Edge/End Distance	1.5 times the hole diameter
Gap between Beams (mm)	3.0
Are Members Exposed to Corrosive Influences?	No

**Design**

Design Method	Limit State Design
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<b>Design Check: Flange Splice Plate</b>			
<b>Check</b>	<b>Required</b>	<b>Provided</b>	<b>Remark</b>
<b>Bolt shear capacity (kN)</b>		$V_{dsf} = ((0.33 * 1 * 0.85 * 247.1) / (1.25)) = 55.45$ [cl. 10.4.3]	
<b>Bolt bearing capacity (kN)</b>		N/A	
<b>Bolt capacity (kN)</b>		55.45	
<b>No. of bolts parallel to beam length; connecting each beam</b>	$(1.05 * 690.18) / 55.45 = 13.1$	14	<b>Pass</b>
<b>No. of rows of bolt (parallel to beam length; connecting each beam)</b>		7	
<b>No. of column(s) of bolt (perpendicular to beam length; connecting each beam)</b>		2	
<b>Total no. of bolts</b>	$4 * 14 = 56$	56	<b>Pass</b>
<b>Bolt pitch (mm)</b>	$\geq 2.5 * 24 = 60.0, \leq \min(32 * 14.0, 300) = 300.0$ [cl. 10.2.2]	70	<b>Pass</b>
<b>Bolt gauge (mm)</b>	$\geq 2.5 * 24 = 60, \leq \min(32 * 14.0, 300) = 300.0$ [cl. 10.2.2]	130	<b>Pass</b>
<b>End distance (mm)</b>	$\geq 1.5 * 30 = 45, \leq 12 * 14.0 = 108.0$ [cl. 10.2.4]	50	<b>Pass</b>
<b>Edge distance (mm)</b>	$\geq 1.5 * 30 = 45, \leq 12 * 14.0 = 108.0$ [cl. 10.2.4]	50	<b>Pass</b>
<b>Block shear capacity (kN)</b>	$\geq 690.18$	$V_{db} = 2174.97$ [cl. 6.4.1]	<b>Pass</b>
<b>Flange plate thickness (mm)</b>	11.4 [Cl. 6.2]	14	<b>Pass</b>
<b>Flange plate height (mm)</b>	$\geq 2 * \min(250.0, 225) + 3.0 = 453.0$ [SCI - 6th edition, page-754]	1043	<b>Pass</b>
<b>Flange plate width (mm)</b>	$\geq 230.0, \leq 250.0$	250	<b>Pass</b>





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**Design Check: Web Splice Plate**

Check	Required	Provided	Remark
<b>Bolt shear capacity (kN)</b>		$V_{dsf} = ((0.33 * 2 * 0.85 * 247.1) / (1.25)) = 110.9$ [cl. 10.4.3]	
<b>Bolt bearing capacity (kN)</b>		N/A	
<b>Bolt capacity (kN)</b>		110.9	
<b>No. of bolts parallel to beam length; connecting each beam</b>	$55.0 / 110.9 = 0.5$	3.0	<b>Pass</b>
<b>No. of rows of bolt (parallel to beam length; connecting each beam)</b>		3	
<b>No. of column(s) of bolt (perpendicular to beam length; connecting each beam)</b>		1	
<b>Total no. of bolts</b>	$2 * 3.0 = 6$	6	<b>Pass</b>
<b>Bolt pitch (mm)</b>	$\geq 2.5 * 24 = 60.0, \leq \min(32 * 9.0, 300) = 300.0$ [cl. 10.2.2]	70	<b>Pass</b>
<b>Bolt gauge (mm)</b>	$\geq 2.5 * 24 = 60, \leq \min(32 * 9.0, 300) = 300.0$ [cl. 10.2.2]	103	<b>Pass</b>
<b>End distance (mm)</b>	$\geq 1.5 * 30 = 45, \leq 12 * 9.0 = 108.0$ [cl. 10.2.4]	50	<b>Pass</b>
<b>Edge distance (mm)</b>	$\geq 1.5 * 30 = 45, \leq 12 * 9.0 = 108.0$ [cl. 10.2.4]	50	<b>Pass</b>
<b>Block shear capacity (kN)</b>	$\geq 55.0$	$V_{db} = 242.45$ [cl. 6.4.1]	<b>Pass</b>
<b>Web plate thickness (mm)</b>	$\geq \max(4.6, 4.5) = 4.6$	6	<b>Pass</b>
<b>Web plate height (mm)</b>	$\leq 340.0 - 2 * 14.0 - 2 * 1.8 - 2 * 5 = 288.4$ [SCI - 6th edition, page 754]	240	<b>Pass</b>
<b>Web plate width (mm)</b>		203	



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**Views**



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<b>Additional Comments</b>	
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