



Created with



Company Name	Pythons & Co	Project Title	A simple block of flats
Group/Team Name	Flying Circus	Subtitle	Abattoir
Designer	Mr. Wiggin	Job Number	1.1.4.1.2
Date	19 /06 /2017	Client	Mr. Tid

Design Conclusion	
Seated Angle	Pass
Seated Angle	
Connection Properties	
Connection	
Connection Title	Seated Angle
Connection Type	Shear Connection
Connection Category	
Connectivity	Column flange-Beam flange
Beam Connection	Bolted
Column Connection	Bolted
Loading (Factored Load)	
Shear Force (kN)	80.0
Components	
Column Section	SC 140
Material	Fe 410
Hole	Standard
Beam Section	MB 200
Material	Fe 410
Hole	Standard
Seated Angle Section	110 110 X 16
Material	Fe 410
Hole	Standard
Top Angle Section	90 90 x 8
Material	Fe 410
Hole	Standard
Bolts	
Type	Bearing Bolt
Grade	6.8
Diameter (mm)	12
Bolts - Required	4
Bolts - Provided	4
Rows	2
Columns	2
Gauge (mm)	50
Pitch (mm)	31.0

End Distance (mm)	35
Edge Distance (mm)	25
Assembly	
Column-Beam Clearance (mm)	10



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Design Preferences

Bolt

Hole Type	Standard Hole
Material Grade Fu (MPa) (overwrite)	600

Detailing

Type of Edge	Sheared or hand flame cut
Minimum Edge Distance check multiplier	1.7 * bolt_hole_diameter
Are members exposed to corrosive influences?	Yes
Gap between Beam and Column (mm)	10

Design

Design Method	Limit State Design
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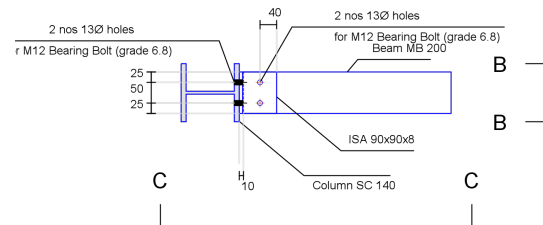
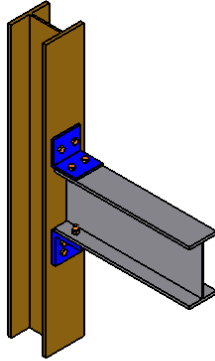
Design Check			
Check	Required	Provided	Remark
Bolt Checks			
Bolt shear capacity (kN)	$V_{dsb} = \text{bolt_fu} * (\pi * 0.78/4) * \text{bolt_diameter}^2 / (\sqrt{3}) / \gamma_{mb}$ [cl. 10.3.3]	$V_{dsb} = 600 * (0.6126) * 12^2 / (\sqrt{3}) / 1.25 / 1000$ = 23.4	
Bolt bearing capacity (kN)	V_{dpb} [Cl. 10.3.4]	$V_{dpb} = 2.5 * 0.519 * 12 * 5.7 * 410 / 1.25 / 1000$ = 61.3 kN	
Bolt capacity (kN)	min (bolt_shear_capacity, bolt_bearing_capacity)	min (23.4, 61.3) = 23.4	
No. of bolts	80.0/23.4 = 4.0	4	Pass
No. of columns		2	
No. of row(s)	≤ 2	2	
Bolt pitch (mm)	≥ 2.5* 12 = 30, ≤ min(32*12.0, 300) = 300.0 [cl. 10.2.2]	31.0	Pass
Bolt gauge (mm)	≥ 2.5*12 = 30, ≤ min(32*12.0, 300) = 300.0 [cl. 10.2.2]	50	Pass
End distance (mm)	≥ 1.7*13 = 23	35	Pass
Edge distance (mm)	≥ 1.7*13 = 23 [cl. 10.2.4.2] As the members are exposed to corrosive influences: [Cl 10.2.4.3] ≤ min(12*12.0*sqrt(250/250), 40 + 4*12.0) = 88.0	25	Pass
Seated Angle 110 110 X 16			
Length (mm)	= min(100.0, 140.0)	100	
Outstanding			Pass

leg length (mm)	[Cl. 8.7.4] $= (80.0 \times 1000 \times 1.1 / (250 \times 5.7)) + 10$	110	Pass
Shear capacity of outstanding leg (kN)	$V_{dp} \geq V$ $V_{dp} \geq 80.0 \text{ kN}$ [Cl. 8.4.1]	$= (100 \times 16.0) \times 250 / (\sqrt{3} \times 1.1)$ $= 254.0$	Pass
Moment capacity of outstanding leg (kN-mm)	As $V \leq 0.6 V_d$, [Cl 8.2.1.2] is applicable $M_d \geq \text{Moment at root of angle}$ $M_d \geq 601.4$	$M_d = \min(\beta_b Z_e f_y / \gamma_{m0}, 1.5 Z_e f_y / \gamma_{m0})$ $= \min(1.0 \times 100 \times (16.0^{2/6}) \times 250 / 1.1, 1.5 \times 100 \times (16.0^{2/6}) \times 250 / 1.1)$ $= 969.7$	Pass
Top Angle			
Section	Recommended size (based on stability only): 55 55 X 6	User selected size: 90 90 x 8	
End distance (mm)	$\geq 1.7 \times \text{bolt_hole_diameter}$ [cl. 10.2.4.2] $\geq 1.7 \times 13 = 23$	on leg connected to Beam: 40 on leg connected to Column: 40	Pass

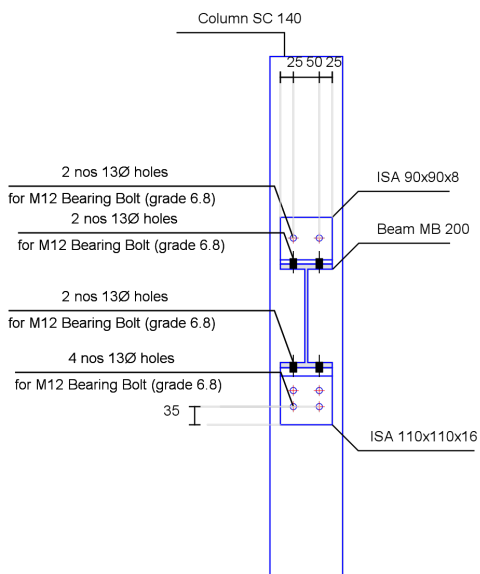


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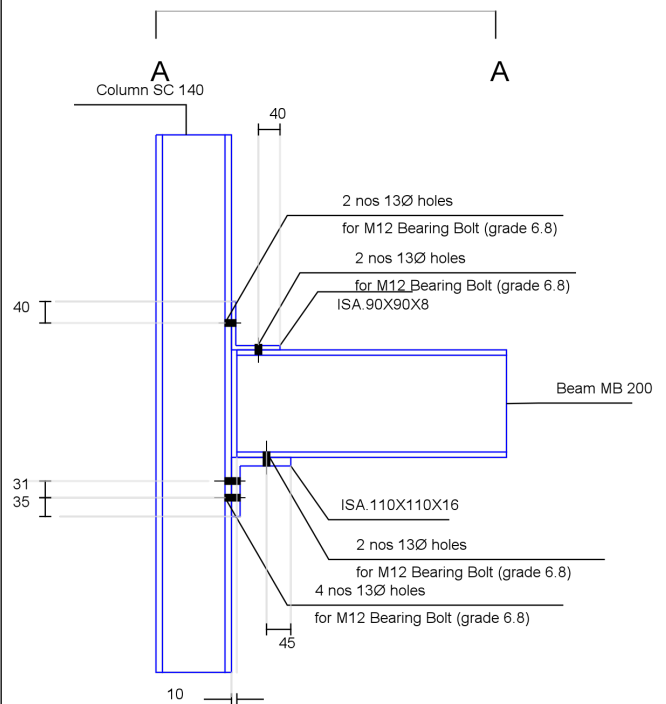
Views



Top view (Sec A-A)
(All distances are in "mm")



Side view (Sec B-B)
(All distances are in "mm")



Front view (Sec C-C)
(All distances are in "mm")



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Additional Comments	
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