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Company Name	**Wymer & Dibble**	**Project Title**	**A simple block of flats**
Group/Team Name	**Flying Circus**	**Subtitle**	**Cantilever floors**
Designer	**Mr. Wymer**	**Job Number**	**1.1.4.2.1**
Date	**20 /06 /2018**	**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 web-Beam flange
Beam Connection	Bolted
Column Connection	Bolted
Loading (Factored Load)	
Shear Force (kN)	80.0
Components	
Column Section	PBP 300X180
Material	Fe 410
Hole	Standard
Beam Section	NPB 250x150x39.8
Material	Fe 410
Hole	Standard
Seated Angle Section	150 150 X 15
Material	Fe 410
Hole	Standard
Top Angle Section	90 90 x 10
Material	Fe 410
Hole	Standard
Bolts	
Type	Bearing Bolt
Grade	5.8
Diameter (mm)	16
Bolts - Required	3
Bolts - Provided	3
Rows	1
Columns	3
Gauge (mm)	43.0
Pitch (mm)	0.0

End Distance (mm)	95
Edge Distance (mm)	30
Assembly	
Column-Beam Clearance (mm)	10.0

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Design Preferences	
Bolt	
Hole Type	Standard Hole
Material Grade Fu (MPa) (overwrite)	800
Detailing	
Type of Edge	Rolled, machine-flame cut, sawn and planed
Minimum Edge Distance check multiplier	1.5 * bolt_hole_diameter
Are members exposed to corrosive influences?	No
Gap between Beam and Column (mm)	10.0
Design	
Design Method	Limit State Design

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Design Check			
Check	**Required**	**Provided**	**Remark**
Bolt Checks			
Bolt shear capacity (kN)	V_{dsb} = bolt_fu* (pi*0.78/4)*bolt_diameter^2/(√3)/$gamma_{mb}$ [cl. 10.3.3]	V_{dsb} = 500* (0.6126)*16^2/(√3)/1.25/1000 = 36.3	
Bolt bearing capacity (kN)	V_{dpb}: [Cl. 10.3.4]	V_{dpb} = 2.5*0.491*16*6.6*410/1.25/1000) = 96.6 kN	
Bolt capacity (kN)	min (bolt_shear_capacity, bolt_bearing_capacity)	min (36.3, 96.6) = 36.3	
No. of bolts	80.0/36.3 = 3.0	3	**Pass**
No. of columns		3	
No. of row(s)	≤ 2	1	
Bolt pitch (mm)	N/A	N/A	
Bolt gauge (mm)	≥ 2.5*16 = 40, ≤ min(32*15.0, 300) = 300.0 [cl. 10.2.2]	43.0	**Pass**
End distance (mm)	≥1.5*18 = 27	95	**Pass**
Edge distance (mm)	≥1.5*18 = 27 [cl. 10.2.4.2] ≤ 12*15.0sqrt(250/250) = 180.0[Cl 10.2.4.3]	30	**Pass**
Seated Angle 150 150 X 15			
Length (mm)	= min(147.0, 326.7 - 2*24.8 - 2*1.52 - 24.0)	147	
Outstanding leg length (mm)	[Cl. 8.7.4] = (80.0*1000*1.1/(250*6.6)) + 10.0	150	**Pass**
Shear capacity of outstanding	V_{dp} ≥ V V_{dp} ≥ 80.0kN	= (147*15.0)*250/ (√ 3 *1.1) = 350.1	**Pass**

leg (kN)	[Cl. 8.4.1]		
Moment capacity of outstanding leg (kN-mm)	As V ≤ 0.6 V_d, [Cl 8.2.1.2] is applicable M_d ≥ Moment at root of angle M_d ≥ 379.4	M_d = min(beta$_b$$Z_e$$f_y$/gamma$_{m0}$, 1.5$Z_e$$f_y$/gamma$_{m0}$) = min(1.0* 147* (15.0^2/6)*250/1.1, 1.5*147*(15.0^2/6)*250/1.1) = 1252.8	**Pass**
Top Angle			
Section	Recommended size (based on stability only): 70 70 X 7	User selected size: 90 90 x 10	
End distance (mm)	≥1.5*bolt_hole_diameter [cl. 10.2.4.2] ≥1.5*18 = 27	on leg connected to Beam: 35 on leg connected to Column: 35	**Pass**

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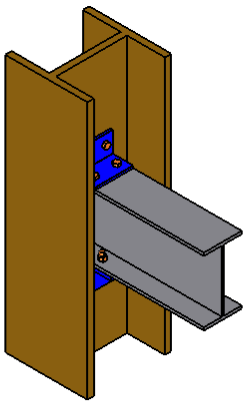
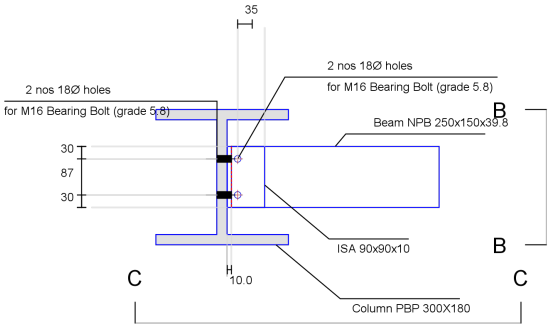
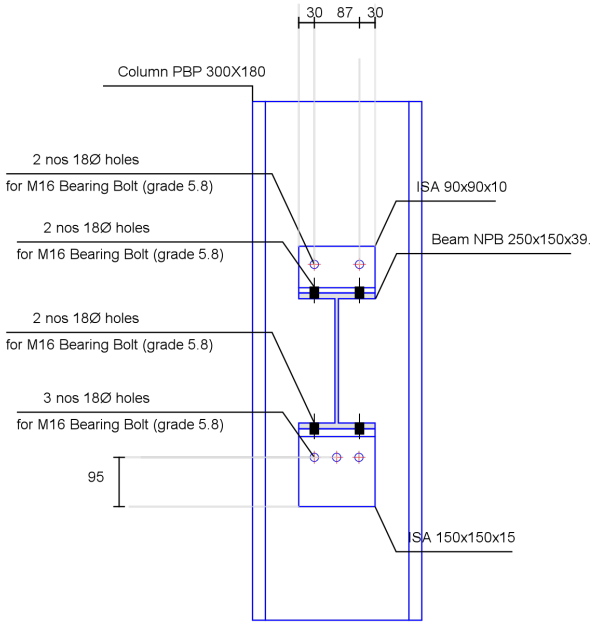
Views

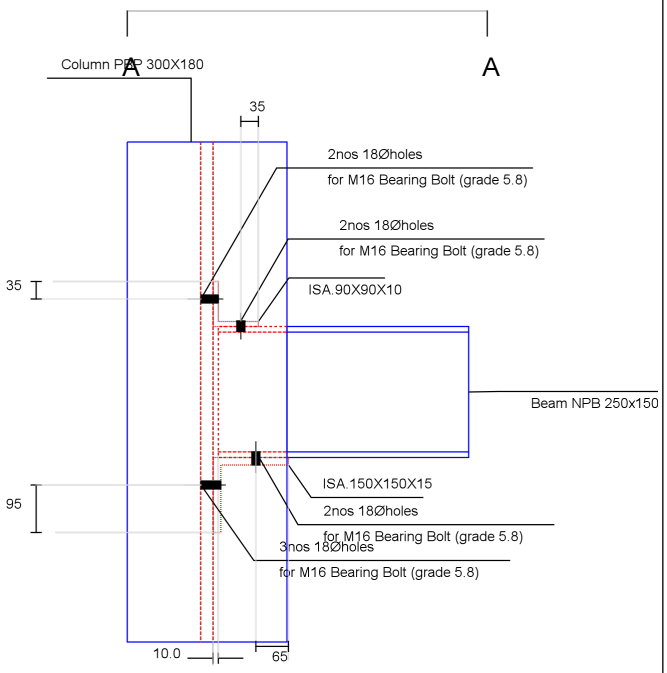




Top view (Sec A-A)
(All dimensions are in "mm")



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



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

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Additional Comments	