



Created with



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	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 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)	15



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Design Preferences

Bolt

Hole Type	Standard Hole
Material Grade Fu (MPa) (overwrite)	520

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)	15

Design

Design Method	Limit State Design
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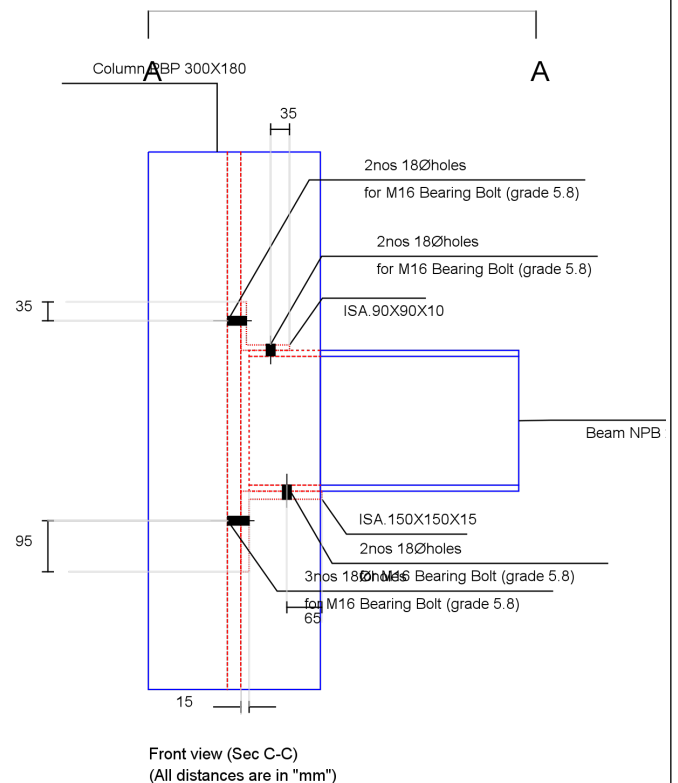
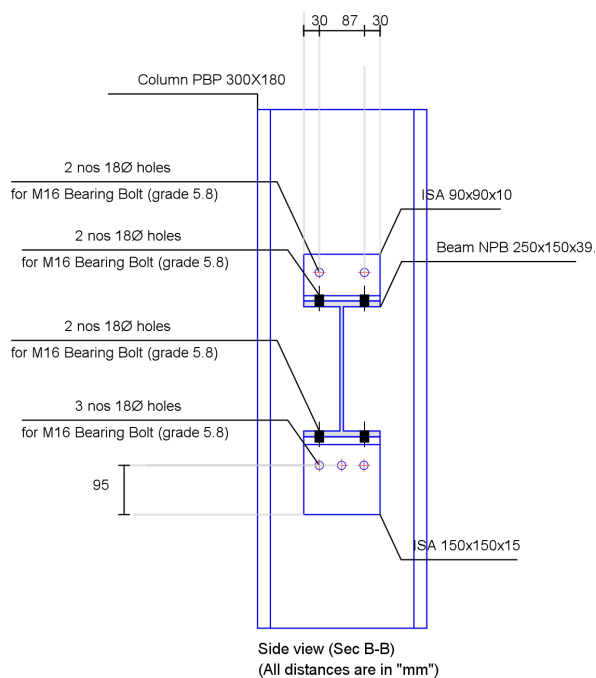
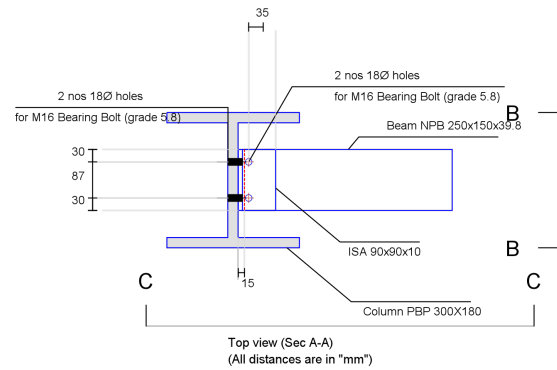
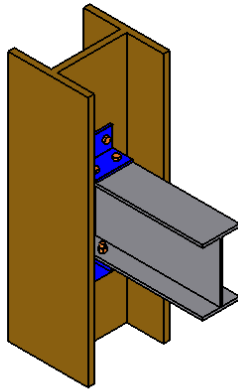
Design Check			
Check	Required	Provided	Remark
Bolt Checks			
Bolt shear capacity (kN)	$V_{dsb} = \text{bolt_fu} * (\pi * 0.78/4) * \text{bolt_diameter}^2 / (\sqrt{3}) / \gamma_{mb}$ [cl. 10.3.3]	$V_{dsb} = 500 * (0.6126) * 16^2 / (\sqrt{3}) / 1.25 / 1000$ $= 36.3$	
Bolt bearing capacity (kN)	V_{dpb} [Cl. 10.3.4]	$V_{dpb} = 2.5 * 0.491 * 16 * 6.6 * 410 / 1.25 / 1000$ $= 96.6 \text{ kN}$	
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)	$\geq 2.5 * 16 = 40$, $\leq \min(32 * 15.0, 300) = 300.0$ [cl. 10.2.2]	43.0	Pass
End distance (mm)	$\geq 1.5 * 18 = 27$	95	Pass
Edge distance (mm)	$\geq 1.5 * 18 = 27$ [cl. 10.2.4.2] $\leq 12 * 15.0 \sqrt{250/250} = 180.0$ [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] $= (80.0 * 1000 * 1.1 / (250 * 6.6)) + 15$	150	Pass
Shear capacity of outstanding	$V_{dp} \geq V$ $V_{dp} \geq 80.0 \text{ kN}$	$= (147 * 15.0) * 250 / (\sqrt{3} * 1.1)$ $= 350.1$	Pass

leg (kN)	[Cl. 8.4.1]		
Moment capacity of outstanding leg (kN-mm)	As $V \leq 0.6 V_d$, [Cl 8.2.1.2] is applicable $M_d \geq \text{Moment at root of angle}$ $M_d \geq 597.3$	$M_d = \min(\beta_b Z_e f_y / \gamma_{m0}, 1.5 Z_e f_y / \gamma_{m0})$ $= \min(1.0 * 147 * (15.0^2 / 6) * 250 / 1.1, 1.5 * 147 * (15.0^2 / 6) * 250 / 1.1)$ $= 1252.8$	Pass
Top Angle			
Section	Recommended size (based on stability only): 70 70 X 7	User selected size: 90 90 x 10	
End distance (mm)	$\geq 1.5 * \text{bolt_hole_diameter}$ [cl. 10.2.4.2] $\geq 1.5 * 18 = 27$	on leg connected to Beam: 35 on leg connected to Column: 35	Pass



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Views





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Additional Comments	
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