



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	1.1.2.2.1
Date	19 /06 /2017	Client	Mr. Tid

Design Conclusion	
End Plate	Pass
End Plate	
Connection Properties	
Connection	
Connection Title	Flexible End Plate
Connection Type	Shear Connection
Connection Category	
Connectivity	Column web-Beam web
Beam Connection	Welded
Column Connection	Bolted
Loading (Factored Load)	
Shear Force (kN)	120
Components	
Column Section	PBP 300X180
Material	Fe 410
Beam Section	UB 356 x 171 x 45
Material	Fe 410
Hole	STD
Plate Section	210X160X12
Thickness (mm)	12
Width (mm)	160
Depth (mm)	210
Hole	STD
Weld	
Type	Double Fillet
Size (mm)	10
Bolts	
Type	HSFG
Grade	10.9
Diameter (mm)	16
Bolt Numbers	6
Columns (Vertical Lines)	1
Bolts Per Column	3
Gauge (mm)	0
Pitch (mm)	40

End Distance (mm)	65
Edge Distance (mm)	30
Assembly	
Column-Beam Clearance (mm)	12



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Design Preferences

Bolt	
Hole Type	Standard
Hole Clearance (mm)	2.0
Material Grade (MPa) (overwrite)	1040.0
Slip factor	0.25

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

Detailing	
Type of Edges	Sheared or hand flame cut
Minimum Edge-End Distance	1.7 times the hole diameter
Are members exposed to corrosive influences?	No

Design	
Design Method	Limit State Design



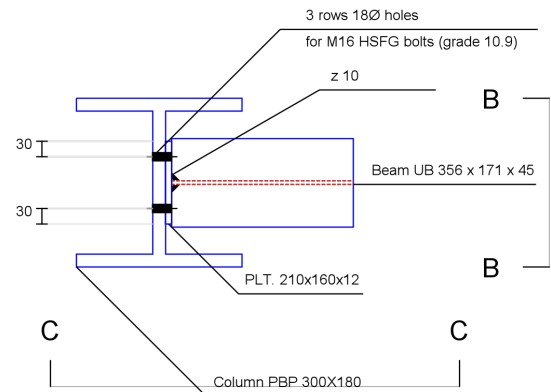
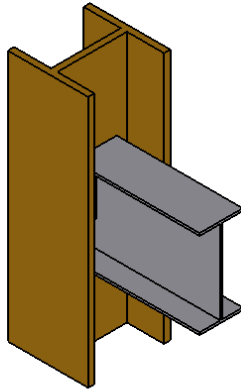
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Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsf} = ((0.25 \times 1 \times 1.0 \times 114.296) / (1.25)) = 21.98$ [cl. 10.4.3]	
Bolt bearing capacity (kN)		N/A	
Bolt capacity (kN)		21.98	Pass
Critical bolt shear (kN)	≤ 21.98	20.0	Pass
No. of bolts		6	
No. of column(s) per side of end plate	≤ 2	1	
No. of bolts per column per side of end plate		3	
Bolt pitch (mm)	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 7.0, 300) = 224$ [cl. 10.2.2]	40	Pass
Bolt gauge (mm)	$\geq 2.5 \times 16 = 40, \leq \text{Min}(32 \times 7.0, 300) = 224$ [cl. 10.2.2]	0	
End distance (mm)	$\geq 1.7 \times 18.0 = 30, \leq 12 \times 7.0 = 84.0$ [cl. 10.2.4]	65	Pass
Edge distance (mm)	$\geq 1.7 \times 18.0 = 30, \leq 12 \times 7.0 = 84.0$ [cl. 10.2.4]	30	Pass
Block shear capacity (kN)	≥ 120	$V_{db} = 120$ [cl. 6.4.1]	Pass
Plate thickness (mm)	≥ 8	12	Pass
Plate height (mm)	$\geq 0.6 \times 351.0 = 210.6, \leq 351.0 - 9.7 - 10.2 - 9.7 - 10.2 - 10 = 301.2$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	210	Pass
Plate Width (mm)	$\geq 160, \leq 264.06$	160	Pass
Effective weld length on each side (mm)		$210 - 2 \times 10 = 190$	
Weld strength (kN/mm)	0.315	$f_v = (0.7 \times 10 \times 410) / (\sqrt{3} \times 1.25 \times 1000) = 1.105$ [cl. 10.5.7]	Pass

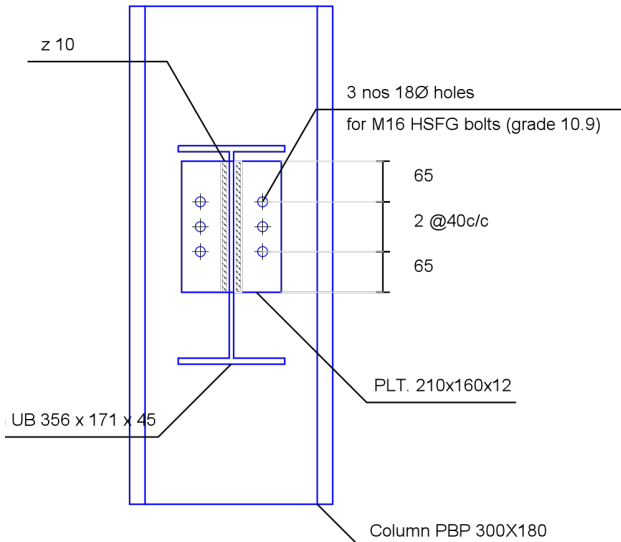


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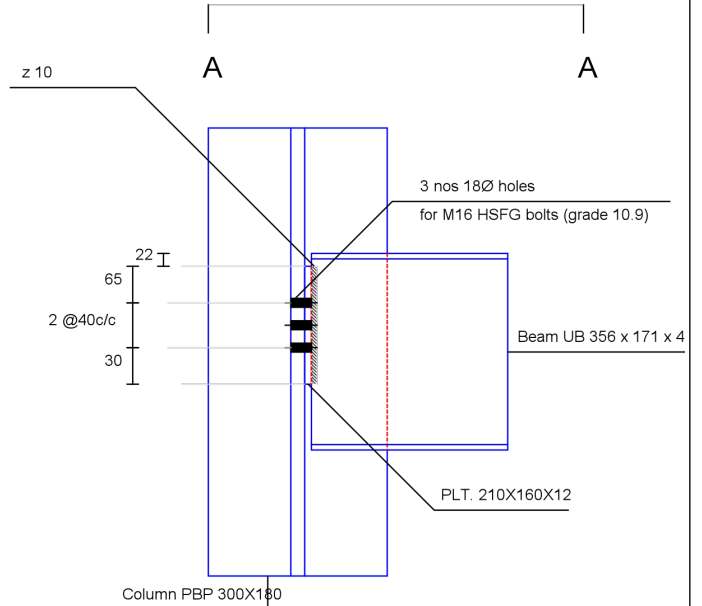
Views



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	
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