



Created with

Company Name	PVPIT	Project Title	Project no. 01
Group/Team Name	OSDAG	Subtitle	
Designer	USER01	Job Number	123
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Design Conclusion

Finplate	Pass
-----------------	-------------

Finplate**Connection Properties****Connection**

Connection Title	Single Finplate
Connection Type	Shear Connection

Connection Category

Connectivity	Column flange-Beam web
Beam Connection	Bolted
Column Connection	Welded

Loading (Factored Load)

Shear Force (kN)	160
------------------	-----

Components

Column Section	ISSC 200
-----------------------	----------

Material	Fe 410
----------	--------

Beam Section	ISMB 400
---------------------	----------

Material	Fe 410
----------	--------

Hole	STD
------	-----

Plate Section	320X100X10
----------------------	------------

Thickness (mm)	10
----------------	----

Width (mm)	100
------------	-----

Depth (mm)	320
------------	-----

Hole	STD
------	-----

Weld

Type	Double Fillet
------	---------------

Size (mm)	8
-----------	---

Bolts

Type	HSFG
------	------

Grade	8.8
-------	-----

Diameter (mm)	20
---------------	----

Bolt Numbers	3
--------------	---

Columns (Vertical Lines)	1
--------------------------	---

Bolts Per Column	3
------------------	---

Gauge (mm)	0
Pitch (mm)	120
End Distance (mm)	40
Edge Distance (mm)	40
Assembly	
Column-Beam Clearance (mm)	20



Created with

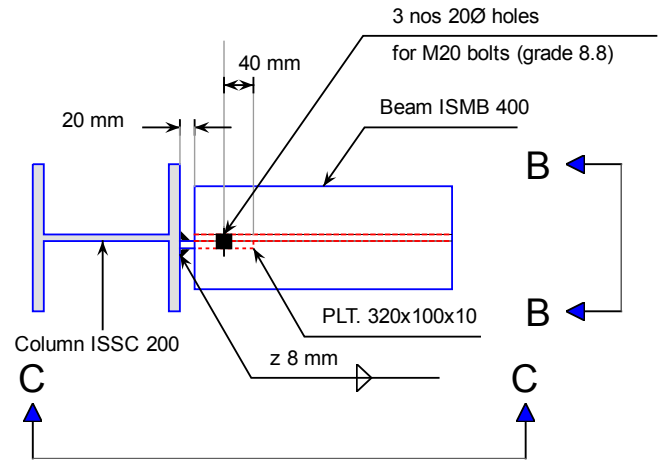
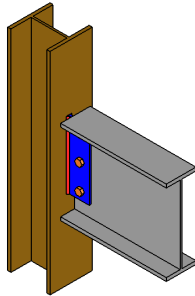
Company Name	PVPIT	Project Title	Project no. 01
Group/Team Name	OSDAG	Subtitle	
Designer	USER01	Job Number	123
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Design Check			
Check	Required	Provided	Remark
Bolt shear capacity (kN)		$V_{dsb} = (800 \times 0.6126 \times 20 \times 20) / (\sqrt{3} \times 1.25 \times 1000)$ = 90.529 [cl. 10.3.3]	
Bolt bearing capacity (kN)		$V_{dpb} = (2.5 \times 0.508 \times 20 \times 8.9 \times 410) / (1.25 \times 1000)$ = 74.148 [cl. 10.3.4]	
Bolt capacity (kN)		Min (90.529, 74.148) = 74.148	
No. of bolts	160/74.148 = 2.2	3	Pass
No. of column(s)	≤ 2	1	
No. of bolts per column		3	
Bolt pitch (mm)	≥ 2.5 * 20 = 50, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	120	Pass
Bolt gauge (mm)	≥ 2.5*20 = 50, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	0	
End distance (mm)	≥ 1.7*22 = 37.4, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	40	Pass
Edge distance (mm)	≥ 1.7*22 = 37.4, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	40	Pass
Block shear capacity (kN)	≥ 160	$V_{db} = 453$	Pass
Plate thickness (mm)	$(5 \times 160 \times 1000) / (320 \times 250) = 10.0$ [Owens and Cheal, 1989]	10	Pass
Plate height (mm)	≥ 0.6*400=240.0, ≤ 400-16-14-10=330.0 [cl. 10.2.4, Insdag Detailing Manual, 2002]	320	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	$(2 \times 90.529 \times 120^2) / (120 \times 1000) = 14.485$	$M_d = (1.2 \times 250 \times Z) / (1000 \times 1.1) = 46.55$ [cl. 8.2.1.2]	Pass
Effective weld length (mm)		320-2*8 = 304	

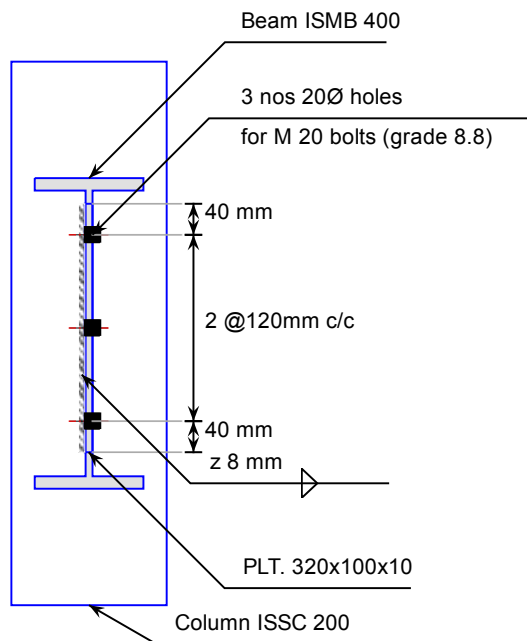
Weld strength (kN/mm)	$\sqrt{[(14485 \cdot 6)/(2 \cdot 304^2)]^2 + [160/(2 \cdot 304)]^2}$ = 0.539	$f_v = (0.7 \cdot 8 \cdot 410)/(\sqrt{3} \cdot 1.25)$ = 1.06 [cl. 10.5.7]	Pass
Weld thickness (mm)	$\text{Max}((0.539 \cdot 1000 \cdot \sqrt{3} \cdot 1.25)/(0.7 \cdot 410), 10 \cdot 0.8) = 8.0$ [cl. 10.5.7, Insdag Detailing Manual, 2002]	8	Pass

Company Name	PVPIT	Project Title	Project no. 01
Group/Team Name	OSDAG	Subtitle	
Designer	USER01	Job Number	123
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

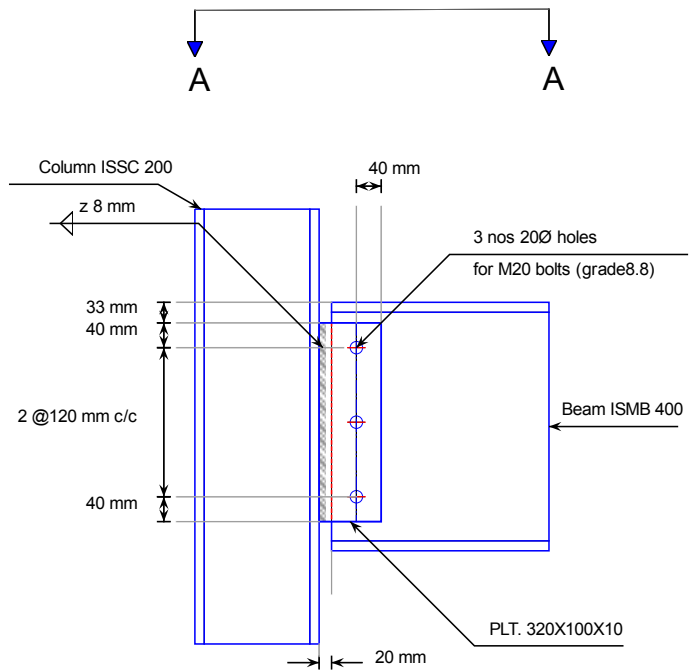
Views



Top view (Sec A-A)



Side view (Sec B-B)



Front view (Sec C-C)



Company Name	PVPIT	Project Title	Project no. 01
Group/Team Name	OSDAG	Subtitle	
Designer	USER01	Job Number	123
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Additional Comments	
----------------------------	--