Company Name	SANGAM UNIVERSITY	Project Title	PROJECT2
Group/Team Name	OSDAG	Subtitle	
Designer	ENGINEER	Job Number	2
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Design Conclusion

Endplate	**Pass**

Endplate

Connection Properties

Connection

Connection Title	Flexible Endplate
Connection Type	Shear Connection

Connection Category

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

Loading (Factored Load)

Shear Force (kN)	100

Components

Column Section	ISSC 250
Material	Fe 410
Beam Section	ISMB 400
Material	Fe 410
Hole	STD
Plate Section	240X144X10
Thickness (mm)	10
Width (mm)	144
Depth (mm)	240
Hole	STD
Weld	
Type	Double Fillet
Size (mm)	8
Bolts	
Type	HSFG
Grade	8.8
Diameter (mm)	12
Bolt Numbers	12
Columns (Vertical Lines)	2
Bolts Per Column	6
Gauge (mm)	0
Pitch (mm)	30
End Distance (mm)	45
Edge Distance (mm)	22

Assembly

Column-Beam Clearance (mm)	10

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Design Check

Check	Required	Provided	Remark
Bolt shear capacity (kN)		V_{dsb} = ((800.0*0.6126*12*12)/(√3*1.25*1000) = 18.97 [cl. 10.3.3]	
Bolt bearing capacity (kN)		V_{dpb} = (2.5*0.519*12*10.0*410)/(1.25*1000) = 51.07 [cl. 10.3.4]	
Bolt capacity (kN)		Min (18.97, 51.07) = 18.97	Pass
Critical bolt shear (kN)	≤ 18.97	14.532	Pass
No. of bolts		12	
No.of column(s)	≤ 2	2	
No. of bolts per column per side of end plate		6	
Bolt pitch (mm)	≥ 2.5*12 = 30, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	30	Pass
Bolt gauge (mm)	≥ 2.5*12 = 30, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	0	
End distance (mm)	≥ 1.7*13.0 = 22.1, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	45	Pass
Edge distance (mm)	≥ 1.7*13.0 = 22.1, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	22	Pass
Block shear capacity (kN)	≥ 100	V_{db} = 178 [cl. 6.4.1]	
Plate thickness (mm)	≥ 6	10	Pass
Plate height (mm)	≥ 0.6*400.0=240.0, ≤ 400.0-16.0-14.0-16.0-14.0- 10=330.0 [cl. 10.2.4, Insdag Detailing Manual, 2002]	240	Pass
Plate Width (mm)	≥ 144, ≤ 250.0	144	Pass
Effective weld length (mm)		240-2*8 = 224	
Weld strength (kN/mm)	0.223	f_v =(0.7*8*410)/(√3*1.25*1000) = 1.06 [cl. 10.5.7]	Pass

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Created with Osdag

Views

6 nos 12Ø holes
for M12 bolts (grade 8.8)

B

22

22

Beam ISMB 400

PLT. 240x144x10

Beam ISSC 250

C   C

Top view (Sec A-A)   (All Dimensions are in mm)

z 8

6 nos 12Ø holes
for M12 bolts (grade 8.8)

45

5 @30c/c

45

PLT. 240x144x10

Beam ISMB 400   Column ISSC 250

Side view (Sec B-B)   (All Dimensions are in mm)

A   A

z 8

6 nos 12Ø holes
for M12 bolts (grade 8.8)

33
45

5 @30c/c

45

Beam ISMB 400

PLT. 240X144X10

Column ISSC 250

Front view (Sec C-C)   (All Dimensions are in mm)

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Date	04 /06 /2016	Metdod	Limit State Design (No Earthquake Load)

Additional Comments	The connection was designed to demonstrate the functionality of Osdag