			Created with ⑤ Osdag
Company Name	LERA	**Project Title**	Renaissance
Group/Team Name	Superkings	**Subtitle**	
Designer	Charan	**Job Number**	
Date	06 /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)	200

Components

Column Section	ISSC 200
Material	Fe 410
Beam Section	ISMB 400
Material	Fe 410
Hole	STD
Plate Section	275X80X14
Thickness (mm)	14
Width (mm)	80
Depth (mm)	275
Hole	STD
Weld	
Type	Double Fillet
Size (mm)	12
Bolts	
Type	HSFG
Grade	8.8
Diameter (mm)	12
Bolt Numbers	7
Columns (Vertical Lines)	1
Bolts Per Column	7
Gauge (mm)	0
Pitch (mm)	35
End Distance (mm)	30

Edge Distance (mm)	30
Assembly	
Column-Beam Clearance (mm)	20
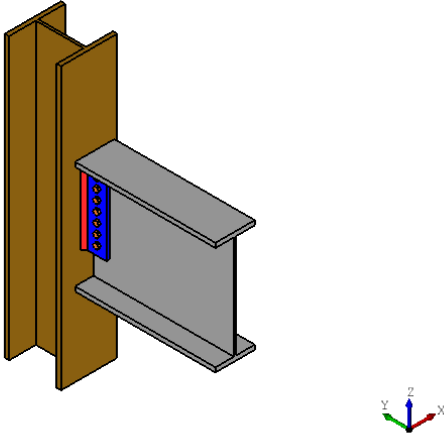
Osdag

Company Name	LERA	Project Title	Renaissance	
Group/Team Name	Superkings	Subtitle		
Designer	Charan	Job Number		
Date	06 /06 /2016	Method	Limit State Design (No Earthquake Load)	

Design Check

Check	Required	Provided	Remark
Bolt shear capacity (kN)		V_{dsb} = (800*0.6126*12*12)/($\sqrt{3}$*1.25*1000) = 31.223 [cl. 10.3.3]	
Bolt bearing capacity (kN)		V_{dpb} = (2.5*0.519*12*8.9*410)/(1.25*1000) = 45.452 [cl. 10.3.4]	
Bolt capacity (kN)		Min (31.223, 45.452) = 31.223	
No. of bolts	200/31.223 = 6.4	7	Pass
No.of column(s)	≤ 2	1	
No. of bolts per column		7	
Bolt pitch (mm)	≥ 2.5* 12 = 30, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	35	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 = 22.1, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	30	Pass
Edge distance (mm)	≥ 1.7*13 = 22.1, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	30	Pass
Block shear capacity (kN)	≥ 200	V_{db} = 466	Pass
Plate thickness (mm)	(5*200*1000)/(275*250) = 14.55 [Owens and Cheal, 1989]	14	Pass
Plate height (mm)	≥ 0.6*400=240.0, ≤ 400-16-14-10=330.0 [cl. 10.2.4, Insdag Detailing Manual, 2002]	275	Pass
Plate width (mm)		100	
Plate moment capacity (kNm)	(2*31.223*35^2)/(35*1000) = 13.488	M_d = (1.2*250*Z)/(1000*1.1) = 48.12 [cl. 8.2.1.2]	Pass
Effective weld length (mm)		275-2*12 = 251	
Weld strength (kN/mm)	$\sqrt{[(13488*6)/(2*251^2)]^2 + [200/(2*251)]^2}$ = 0.756	f_v= (0.7*12*410)/($\sqrt{3}$*1.25) = 1.591 [cl. 10.5.7]	Pass

Weld thickness (mm)	Max((0.756*1000*$\sqrt{3}$* 1.25)/(0.7 * 410),14* 0.8) = 11.2 [cl. 10.5.7, Insdag Detailing Manual, 2002]	12	Pass

			Created with Osdag
Company Name	LERA	Project Title	Renaissance
Group/Team Name	Superkings	Subtitle	
Designer	Charan	Job Number	
Date	06 /06 /2016	Method	Limit State Design (No Earthquake Load)

Views

Company Name	LERA	Project Title	Renaissance
Group/Team Name	Superkings	Subtitle	
Designer	Charan	Job Number	
Date	06 /06 /2016	Method	Limit State Design (No Earthquake Load)

Additional Comments	