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Company Name	**LERA**	**Project Title**	**IIT**
Group/Team Name	**LERA team**	**Subtitle**	
Designer	**Raju**	**Job Number**	**P02**
Date	**05 /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)	160
Components	
Column Section	ISSC 250
Material	Fe 410
Beam Section	ISMB 400
Material	Fe 410
Hole	STD
Plate Section	250X170X10
Thickness (mm)	10
Width (mm)	170
Depth (mm)	250
Hole	STD
Weld	
Type	Double Fillet

Size (mm)	8
Bolts	
Type	HSFG
Grade	8.8
Diameter (mm)	16
Bolt Numbers	8
Columns (Vertical Lines)	2
Bolts Per Column	4
Gauge (mm)	0
Pitch (mm)	63
End Distance (mm)	30
Edge Distance (mm)	30
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*16*16)/(√3*1.25*1000) = 33.724 [cl. 10.3.3]	
Bolt bearing capacity (kN)		V_{dpb} = (2.5*0.491*16*10.0*410)/(1.25*1000) = 64.419 [cl. 10.3.4]	
Bolt capacity (kN)		Min (33.724, 64.419) = 33.724	**Pass**
Critical bolt shear (kN)	≤ 33.724	28.886	**Pass**
No. of bolts		8	
No.of column(s)	≤ 2	2	
No. of bolts per column per side of end plate		4	
Bolt pitch (mm)	≥ 2.5*16 = 40, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	63	**Pass**
Bolt gauge (mm)	≥ 2.5*16 = 40, ≤ Min(32*8.9, 300) = 285 [cl. 10.2.2]	0	
End distance (mm)	≥ 1.7*18.0 = 30.6, ≤ 12*8.9 = 106.8 [cl. 10.2.4]	30	**Pass**
Edge distance	≥ 1.7*18.0 = 30.6, ≤		

(mm)	12*8.9 = 106.8 [cl. 10.2.4]	30	**Pass**
Block shear capacity (kN)	≥ 160	V_{db} = 231 [cl. 6.4.1]	
Plate thickness (mm)	≥ 8	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]	250	**Pass**
Plate Width (mm)	≥ 160, ≤ 250.0	170	**Pass**
Effective weld length (mm)		250-2*8 = 234	
Weld strength (kN/mm)	0.342	f_v =(0.7*8*410)/(√3*1.25*1000) = 1.06 [cl. 10.5.7]	**Pass**

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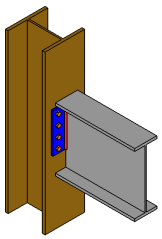
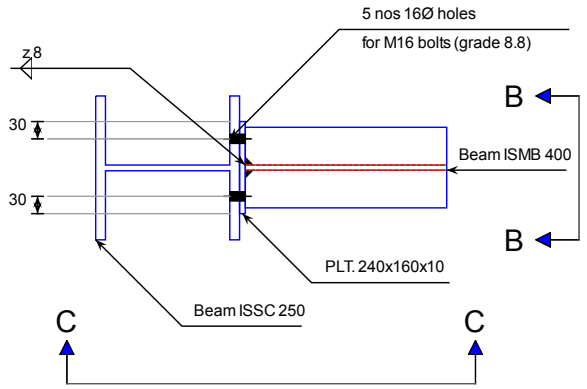
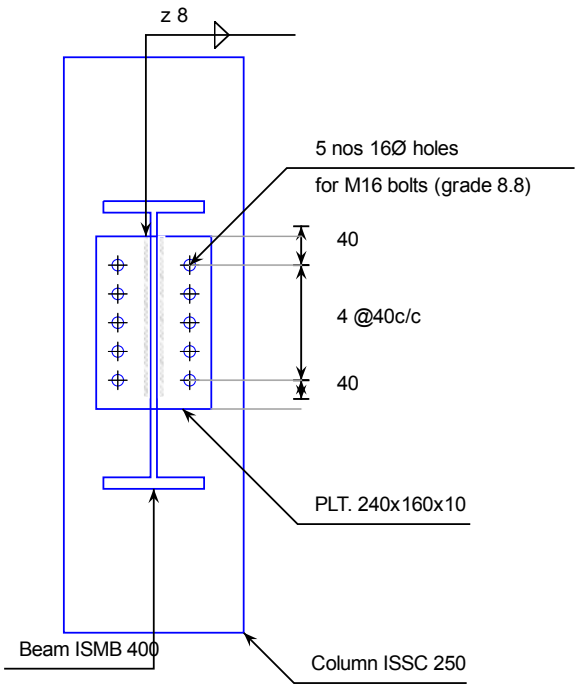
Views

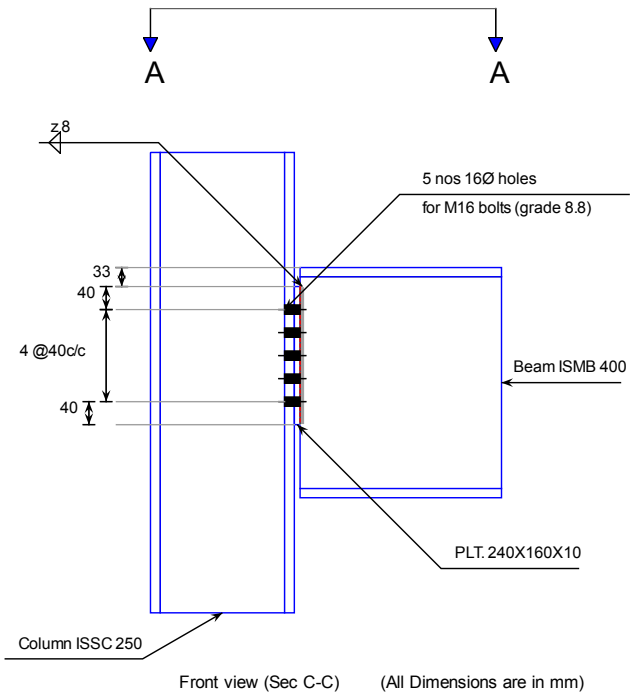




Top view (Sec A-A) (All Dimensions are in mm)



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



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

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Designer	**Raju**	**Job Number**	**P02**
Date	**05 /06 /2016**	**Metdod**	**Limit State Design (No Earthquake Load)**

Additional Comments	