 <small>Created with</small>	
<b>Company Name</b>	<b>DIEMS</b>	<b>Project Title</b>	<b>End Plate</b>
<b>Group/Team Name</b>	<b>DIEMS</b>	<b>Subtitle</b>	
<b>Designer</b>	<b>Kavish Patwari</b>	<b>Job Number</b>	<b>2</b>
<b>Date</b>	<b>04 /06 /2016</b>	<b>Method</b>	<b>Limit State Design (No Earthquake Load)</b>


<b>Design Conclusion</b>	
<b>Endplate</b>	<b>Pass</b>
<b>Endplate</b>	
<b>Connection Properties</b>	
<b>Connection</b>	
Connection Title	Flexible Endplate
Connection Type	Shear Connection
<b>Connection Category</b>	
Connectivity	Column web-Beam web
Beam Connection	Welded
Column Connection	Bolted
<b>Loading (Factored Load)</b>	
Shear Force (kN)	160
<b>Components</b>	
<b>Column Section</b>	ISSC 250
Material	Fe 410
<b>Beam Section</b>	ISMB 400
Material	Fe 410
Hole	STD
<b>Plate Section</b>	240X144X10
Thickness (mm)	10
Width (mm)	144
Depth (mm)	240
Hole	STD
<b>Weld</b>	
Type	Double Fillet
Size (mm)	8
<b>Bolts</b>	
Type	HSFG
Grade	8.8
Diameter (mm)	12
Bolt Numbers	14
Columns (Vertical Lines)	2
Bolts Per Column	7

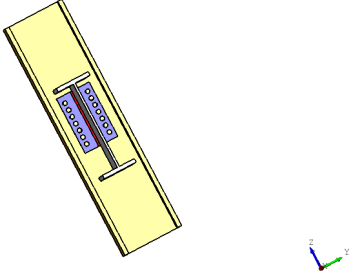
Gauge (mm)	0
Pitch (mm)	30
End Distance (mm)	30
Edge Distance (mm)	22
<b>Assembly</b>	
<b>Column-Beam Clearance (mm)</b>	10


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Design Check			
Check	Required	Provided	Remark
<b>Bolt shear capacity (kN)</b>		$V_{dsb} = ((800.0 \times 0.6126 \times 12 \times 12) / (\sqrt{3} \times 1.25 \times 1000)) = 18.97$ [cl. 10.3.3]	
<b>Bolt bearing capacity (kN)</b>		$V_{dpb} = (2.5 \times 0.519 \times 12 \times 10.0 \times 410) / (1.25 \times 1000) = 51.07$ [cl. 10.3.4]	
<b>Bolt capacity (kN)</b>		Min (18.97, 51.07) = 18.97	<b>Pass</b>
<b>Critical bolt shear (kN)</b>	$\leq 18.97$	18.295	<b>Pass</b>
<b>No. of bolts</b>		14	
<b>No. of column(s)</b>	$\leq 2$	2	
<b>No. of bolts per column per side of end plate</b>		7	
<b>Bolt pitch (mm)</b>	$\geq 2.5 \times 12 = 30, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	30	<b>Pass</b>
<b>Bolt gauge (mm)</b>	$\geq 2.5 \times 12 = 30, \leq \text{Min}(32 \times 8.9, 300) = 285$ [cl. 10.2.2]	0	
<b>End distance (mm)</b>	$\geq 1.7 \times 13.0 = 22.1, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	30	<b>Pass</b>
<b>Edge distance (mm)</b>	$\geq 1.7 \times 13.0 = 22.1, \leq 12 \times 8.9 = 106.8$ [cl. 10.2.4]	22	<b>Pass</b>
<b>Block shear capacity (kN)</b>	$\geq 160$	$V_{db} = 180$ [cl. 6.4.1]	
<b>Plate thickness (mm)</b>	$\geq 6$	10	<b>Pass</b>
<b>Plate height (mm)</b>	$\geq 0.6 \times 400.0 = 240.0, \leq 400.0 - 16.0 - 14.0 - 16.0 - 14.0 - 10 = 330.0$ [cl. 10.2.4, Insdag Detailing Manual, 2002]	240	<b>Pass</b>

<b>Plate Width (mm)</b>	$\geq 144, \leq 160.0$	144	<b>Pass</b>
<b>Effective weld length (mm)</b>		$240 - 2 \cdot 8 = 224$	
<b>Weld strength (kN/mm)</b>	0.357	$f_v = (0.7 \cdot 8 \cdot 410) / (\sqrt{3} \cdot 1.25 \cdot 1000)$ $= 1.06$ [cl. 10.5.7]	<b>Pass</b>

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Group/Team Name	DIEMS	Subtitle	
Designer	Kavish Patwari	Job Number	2
Date	04 /06 /2016	Method	Limit State Design (No Earthquake Load)

Views	
	

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<b>Designer</b>	<b>Kavish Patwari</b>	<b>Job Number</b>	<b>2</b>
<b>Date</b>	<b>04 /06 /2016</b>	<b>Metdod</b>	<b>Limit State Design (No Earthquake Load)</b>
<b>Additional Comments</b>			