



<b>Company Name</b>	<b>El Mystico &amp; Janet</b>	<b>Project Title</b>	<b>Twenty-five story blocks</b>
<b>Group/Team Name</b>	<b>Design by Hypnosis</b>	<b>Subtitle</b>	<b>Something completely different</b>
<b>Designer</b>	<b>El Mystico</b>	<b>Job Number</b>	<b>1.1.4.2.3</b>
<b>Date</b>	<b>19 /06 /2017</b>	<b>Client</b>	<b>Mr. Clement Onan</b>

**Design Conclusion****Seated Angle****Fail****Seated Angle****Connection Properties****Connection**

Connection Title

Seated Angle

Connection Type

Shear Connection

**Connection Category**

Connectivity

Column web-Beam flange

Beam Connection

Bolted

Column Connection

Bolted

**Loading (Factored Load)**

Shear Force (kN)

100.0

**Components****Column Section**

SC 200

Material

Fe 410

Hole

Standard

**Beam Section**

MB 550

Material

Fe 410

Hole

Standard

**Seated Angle Section**

150 150 X 15

Material

Fe 410

Hole

Standard

**Top Angle Section**

150 75 X 12

Material

Fe 410

Hole

Standard

**Bolts**

Type

Bearing Bolt

Grade

4.6

Diameter (mm)

20

Bolts - Required

3

Bolts - Provided

4

Rows

2

Columns

2

Gauge (mm)

34

Pitch (mm)	54.0
End Distance (mm)	35
Edge Distance (mm)	35
<b>Assembly</b>	
Column-Beam Clearance (mm)	10



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<b>Design Preferences</b>	
<b>Bolt</b>	
Hole Type	Standard Hole
Material Grade Fu (MPa) (overwrite)	400
<b>Detailing</b>	
Type of Edge	Rolled, machine-flame cut, sawn and planed
Minimum Edge Distance check multiplier	1.5 * bolt_hole_diameter
Are members exposed to corrosive influences?	Yes
Gap between Beam and Column (mm)	10
<b>Design</b>	
Design Method	Limit State Design



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Design Check			
Check	Required	Provided	Remark
Bolt Checks			
Bolt shear capacity (kN)	$V_{dsb} = \text{bolt\_fu}^*$ $(\pi \cdot 0.78/4) \cdot \text{bolt\_diameter}^2 / (\sqrt{3}) / \gamma_{mb}$ [cl. 10.3.3]	$V_{dsb} = 400^*$ $(0.6126) \cdot 20^2 / (\sqrt{3}) / 1.25 / 1000$ $= 45.3$	
Bolt bearing capacity (kN)	$V_{dpb}$ : [Cl. 10.3.4]	$V_{dpb} =$ $2.5 \cdot 0.508 \cdot 20 \cdot 11.2 \cdot 410 / 1.25 / 1000$ $= 125.0 \text{ kN}$	
Bolt capacity (kN)	min (bolt_shear_capacity, bolt_bearing_capacity)	min (45.3, 125.0) = 45.3	
No. of bolts	$100.0 / 45.3 = 3.0$	4	Pass
No. of columns		2	
No. of row(s)	$\leq 2$	2	
Bolt pitch (mm)	$\geq 2.5 \cdot 20 = 50$ , $\leq \min(32 \cdot 15.0, 300) = 300.0$ [cl. 10.2.2]	54.0	Pass
Bolt gauge (mm)	$\geq 2.5 \cdot 20 = 50$ , $\leq \min(32 \cdot 15.0, 300) = 300.0$ [cl. 10.2.2]	34	Fail
End distance (mm)	$\geq 1.5 \cdot 22 = 33$	35	Pass
Edge distance (mm)	$\geq 1.5 \cdot 22 = 33$ [cl. 10.2.4.2]  As the members are exposed to corrosive influences: [CI 10.2.4.3] $\leq \min(12 \cdot 15.0 \cdot \sqrt{250/250}, 40 + 4 \cdot 15.0)$ $= 100.0$	35	Pass
Seated Angle 150 150 X 15			
Length (mm)	$= \min(190.0, 200.0 - 2 \cdot 15.0 - 2 \cdot 18.0 - 30.0)$	104	

<b>Outstanding leg length (mm)</b>	[Cl. 8.7.4] $= (100.0 \times 1000 \times 1.1 / (250 \times 11.2)) + 10$	150	<b>Pass</b>
<b>Shear capacity of outstanding leg (kN)</b>	$V_{dp} \geq V$ $V_{dp} \geq 100.0 \text{ kN}$ [Cl. 8.4.1]	$= (104 \times 15.0) \times 250 / (\sqrt{3} \times 1.1)$ $= 247.7$	<b>Pass</b>
<b>Moment capacity of outstanding leg (kN-mm)</b>	As $V \leq 0.6 V_d$ , [Cl 8.2.1.2] is applicable $M_d \geq \text{Moment at root of angle}$ $M_d \geq 0.0$	$M_d = \min(\beta_b Z_e f_y / \gamma_{m0}, 1.5 Z_e f_y / \gamma_{m0})$ $= \min(1.0 \times 104 \times (15.0^2 / 6) \times 250 / 1.1, 1.5 \times 104 \times (15.0^2 / 6) \times 250 / 1.1)$ $= 886.4$	<b>Pass</b>
<b>Top Angle</b>			
<b>Section</b>	Recommended size (based on stability only): cannot compute	User selected size: 150 75 X 12	
<b>End distance (mm)</b>	$\geq 1.5 \times \text{bolt\_hole\_diameter}$ [cl. 10.2.4.2] $\geq 1.5 \times 22 = 33$	on leg connected to Beam: 30 on leg connected to Column: 70	<b>Fail</b>



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<b>Views</b>
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<b>Additional Comments</b>	
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