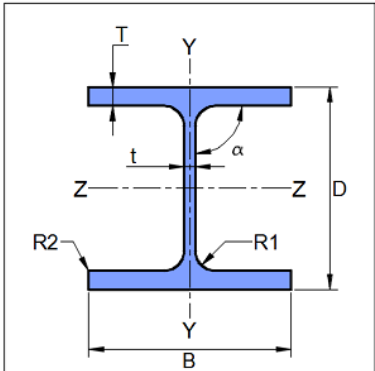
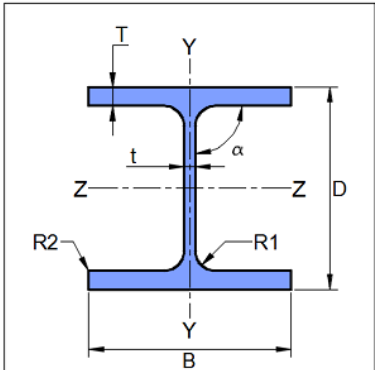




Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

## 1 Input Parameters

Main Module		Shear Connection		
Module		Fin Plate		
Connectivity		Column Web-Beam Web		
Shear Force (kN)		225.0		
Axial Force (kN)		100.0		
Supporting Section - Mechanical Properties				
	Supporting Section		PBP 400 X 230.9	
	Material		E 350 (Fe 490)	
	Ultimate Strength, Fu (MPa)		490	
	Yield Strength, Fy (MPa)		330	
	Mass, m (kg/m)	230.9	Iz (cm4)	70100.0
	Area, A (cm2)	294.0	Iy(cm4)	28200.0
	D (mm)	372.0	rz (cm)	15.4
	B (mm)	402.0	ry (cm)	9.8
	t (mm)	26.0	Zz (cm3)	3770.0
	T (mm)	26	Zy (cm3)	1400.0
	Flange Slope	90	Zpz (cm3)	4310.0
	R1 (mm)	15.0	Zpy (cm3)	2150.0
	R2 (mm)	0.0		
Supported Section - Mechanical Properties				
	Supported Section		NPB 350 X 250 X 79.18	
	Material		E 350 (Fe 490)	
	Ultimate Strength, Fu (MPa)		490	
	Yield Strength, Fy (MPa)		350	
	Mass, m (kg/m)	79.18	Iz (cm4)	21500.0
	Area, A (cm2)	100.0	Iy(cm4)	3650.0
	D (mm)	340.0	rz (cm)	14.6
	B (mm)	250.0	ry (cm)	6.01
	t (mm)	9.0	Zz (cm3)	1260.0
	T (mm)	14.0	Zy (cm3)	292.0
	Flange Slope	90	Zpz (cm3)	1400.0
	R1 (mm)	18.0	Zpy (cm3)	446.0
	R2 (mm)	0.0		



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Bolt Details - Input and Design Preference	
Diameter (mm)	[12, 16, 20, 24]
Property Class	[4.6, 8.8, 10.9]
Type	Bearing Bolt
Hole Type	Over-sized
Bolt Tension	Non pre-tensioned
Slip Factor, ( $\mu_f$ )	0.3
Detailing - Design Preference	
Edge Preparation Method	Rolled, machine-flame cut, sawn and planed
Gap Between Members (mm)	12.0
Are the Members Exposed to Corrosive Influences?	False
Plate Details - Input and Design Preference	
Thickness (mm)	[12, 14, 16, 18, 20, 22, 25]
Material	E 250 (Fe 410 W)A
Ultimate Strength, $F_u$ (MPa)	410
Yield Strength, $F_y$ (MPa)	250
Weld Details - Input and Design Preference	
Weld Type	Fillet
Type of Weld Fabrication	Shop Weld
Material Grade Overwrite, $F_u$ (MPa)	510.0



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

## 2 Design Checks

Design Status	Pass
---------------	------

### 2.1 Initial Section Check

Check	Required	Provided	Remarks
Shear Yielding Capacity (kN)	225.0	$V_{dy} = \frac{A_v f_y}{\sqrt{3} \gamma_{mo}}$ $= \frac{340.0 \times 9.0 \times 350}{\sqrt{3} \times 1.1 \times 1000}$ $= 562.13$ [Ref. IS 800 : 2007, Cl.10.4.3]	Pass
Allowable Shear Capacity (kN)	225.0	$V_d = 0.6 V_{dy}$ $= 0.6 \times 562.13$ $= 337.28$ [Limited to low shear]	Pass
Tension Yielding Capacity (kN)	100.0	$T_{dg} = \frac{A_g f_y}{\gamma_{mo}}$ $A_g = l \times t = 340.0 \times 9.0$ $= \frac{3060.0 \times 350}{1.1 \times 10^3}$ $= 973.64$ [Ref. IS 800 : 2007, Cl. 6.2]	Pass

### 2.2 Load Consideration

Check	Required	Provided	Remarks
-------	----------	----------	---------



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Applied Shear Force (kN)	225.0	$V_{ymin} = \min(0.15 \times V_{dy}, 40.0)$ $= \min(0.15 \times 562.13, 40.0)$ $= 40$ $V_u = \max(V_y, V_{ymin})$ $= \max(225.0, 40)$ $= 225.0$ $[Ref. IS 800 : 2007, Cl. 10.7]$	
Applied Axial Force (kN)	100.0	100.0	

## 2.3 Bolt Design

Check	Required	Provided	Remarks
Diameter (mm)		16.0	
Property Class		8.8	
Plate Thickness (mm)	$t_w = 9.0$	12.0	Pass
No. of Bolt Columns		2	Pass
No. of Bolt Rows		6	
Min. Pitch Distance (mm)	$p_{min} = 2.5 d$ $= 2.5 \times 16.0$ $= 40.0$ $[Ref IS 800 : 2007, Cl. 10.2.2]$	40	Pass
Max. Pitch Distance (mm)	$p/g_{max} = \min(32 t, 300 mm)$ $= \min(32 \times 9.0, 300 mm)$ $= \min(288.0, 300 mm)$ $= 288.0$ $Where, t = \min(12.0, 9.0)$ $[Ref. IS 800 : 2007, Cl. 10.2.3]$	40	Pass



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Min. Gauge Distance (mm)	$p_{min} = 2.5 d$ $= 2.5 \times 16.0$ $= 40.0$  [Ref IS 800 : 2007, Cl. 10.2.2]	40	Pass
Max. Gauge Distance (mm)	$p/g_{max} = \min(32 t, 300 \text{ mm})$ $= \min(32 \times 9.0, 300 \text{ mm})$ $= \min(288.0, 300 \text{ mm})$ $= 288.0$  Where, $t = \min(12.0, 9.0)$  [Ref. IS 800 : 2007, Cl. 10.2.3]	40	Pass
Min. End Distance (mm)	$e_{min} = 1.5 d_0$ $= 1.5 \times 20.0$ $= 30.0$  [Ref. IS 800 : 2007, Cl. 10.2.4.2]	30	Pass
Max. End Distance (mm)	$e_{max} = 12 t \varepsilon; \varepsilon = \sqrt{\frac{250}{f_y}}$ $e_1 = 12 \times 12.0 \times \sqrt{\frac{250}{250}} = 144.0$ $e_2 = 12 \times 9.0 \times \sqrt{\frac{250}{350}} = 91.28$ $e_{max} = \min(e_1, e_2) = 91.28$  [Ref. IS 800 : 2007, Cl. 10.2.4.3]	30	Pass
Min. Edge Distance (mm)	$e'_{min} = 1.5 d_0$ $= 1.5 \times 20.0$ $= 30.0$  [Ref. IS 800 : 2007, Cl. 10.2.4.2]	30	Pass



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Max. Edge Distance (mm)	$e'_{max} = 12 t \varepsilon; \varepsilon = \sqrt{\frac{250}{f_y}}$ $e_1 = 12 \times 12.0 \times \sqrt{\frac{250}{250}} = 144.0$ $e_2 = 12 \times 9.0 \times \sqrt{\frac{250}{350}} = 91.28$ $e'_{max} = \min(e_1, e_2) = 91.28$ <p>[Ref. IS 800 : 2007, Cl. 10.2.4.3]</p>	30	Pass
Moment Demand (kNm)		$M_d = (V_u \times ecc + M_w)$ <p><i>ecc = eccentricity</i>  <i>M<sub>w</sub> = external moment acting on web</i></p> $= \frac{(225.0 \times 10^3 \times 62.0 + 0.0 \times 10^6)}{10^6}$ $= 13.95$	
Bolt Force Parameter(s) (mm)	$l_n = \text{length available}$ $l_n = p (n_r - 1)$ $= 40 \times (6 - 1)$ $= 200$ $y_{max} = l_n / 2$ $= 200 / 2$ $= 100.0$ $x_{max} = g(n_c - 1) / 2$ $= 40 \times (2 - 1) / 2$ $= 20.0$		



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Bolt Force (kN)	$v_b v_r = V_u / (n_r \times n_c)$ $= \frac{225.0}{(6 \times 2)}$ $= 18.75$ $t_m h = \frac{M_d \times y_{max}}{\sum r_i^2}$ $= \frac{13.95 \times 100.0}{60.8}$ $= 22.94$ $t_m v = \frac{M_d \times x_{max}}{\sum r_i^2}$ $= \frac{13.95 \times 20.0}{60.8}$ $= 4.59$ $a_b h = \frac{A_u}{(n_r \times n_c)}$ $= \frac{100.0}{(6 \times 2)}$ $= 8.33$ $v_{res} = \sqrt{(v_b v_r + t_m v)^2 + (t_m h + a_b h)^2}$ $= \sqrt{(18.75 + 4.59)^2 + (22.94 + 8.33)^2}$ $= 39.03$		
Shear Capacity (kN)		$V_{dsb} = \frac{f_{ub} n_n A_{nb}}{\sqrt{3} \gamma_{mb}}$ $= \frac{800.0 \times 1 \times 157}{1000 \times \sqrt{3} \times 1.25}$ $= 58.01$ [Ref. IS 800 : 2007, Cl. 10.3.3]	



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Kb		$k_b = \min \left( \frac{e}{3d_0}, \frac{p}{3d_0} - 0.25, \frac{f_{ub}}{f_u}, 1.0 \right)$ $= \min \left( \frac{30}{3 \times 20.0}, \frac{40}{3 \times 20.0} - 0.25, \frac{800.0}{490}, 1.0 \right)$ $= \min(0.5, 0.42, 1.63, 1.0)$ $= 0.42$ <p>[Ref. IS 800 : 2007, Cl. 10.3.4]</p>	
Bearing Capacity (kN)		$V_{dpb} = \frac{2.5 k_b d t f_u}{\gamma_{mb}}$ $= \frac{2.5 \times 0.42 \times 16.0 \times 9.0 \times 490}{1000 \times 1.25}$ $= 41.49$ <p>[Ref. IS 800 : 2007, Cl. 10.3.4]</p>	
Capacity (kN)		$V_{db} = \min (V_{dsb}, V_{dpb})$ $= \min (58.01, 41.49)$ $= 41.49$ <p>[Ref. IS 800 : 2007, Cl. 10.3.2]</p>	
Long Joint Reduction Factor	<p>if <math>l_j \geq 15d</math> then <math>V_{rd} = \beta_{lj} V_{db}</math></p> <p>if <math>l_j &lt; 15d</math> then <math>V_{rd} = V_{db}</math></p> <p>where,</p> $l_j = ((n_c \text{ or } n_r) - 1) \times (p \text{ or } g)$ $\beta_{lj} = 1.075 - l/(200d)$ <p>but <math>0.75 \leq \beta_{lj} \leq 1.0</math></p> <p>[Ref. IS 800 : 2007, Cl. 10.3.3.1]</p>	$l_j = (n_r - 1) \times p$ $= (6 - 1) \times 40 = 200$ $l = 200$ $15 \times d = 15 \times 16.0 = 240.0$ <p>since, <math>l_j &lt; 15 \times d</math> then <math>\beta_{lj} = 1.0</math></p> <p>[Ref. IS 800 : 2007, Cl. 10.3.3.1]</p>	
Capacity (kN)	39.03	41.49	Pass





Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

## 2.4 Plate Design

Check	Required	Provided	Remarks
Min. Plate Height (mm)	$0.6 \times (d_b - 2 \times t_f - 2 \times r_r)$ $= 0.6 \times (340.0 - 2 \times 14.0 - 2 \times 18.0)$ $= 165.6$  <i>[Ref. INSDAG – Chpt.5, Sect.5.2.3]</i>	260	Pass
Max. Plate Height (mm)	$d_b - 2(t_{bf} + r_{b1} + gap)$ $= 340.0 - 2 \times (14.0 + 18.0 + 10)$ $= 276.0$	260	Pass
Min. Plate Width (mm)	$2e_{min} + (n_c - 1)p_{min}$ $= 2 \times 30.0 + (2 - 1) \times 40.0$ $= 112.0$	112.0	Fail
Min. Plate Thickness (mm)	$t_w = 9.0$	12.0	Pass
Shear Yielding Capacity (kN)		$V_{dy} = \frac{A_v f_y}{\sqrt{3} \gamma_{mo}}$ $= \frac{260 \times 12.0 \times 250}{\sqrt{3} \times 1.1 \times 1000}$ $= 409.39$  <i>[Ref.IS 800 : 2007, Cl.10.4.3]</i>	
Allowable Shear Capacity (kN)	$V = 225.0$	$V_d = 0.6 V_{dy}$ $= 0.6 \times 409.39$ $= 245.64$  <i>[Limited to low shear]</i>	Pass
Shear Rupture Capacity (kN)		$V_{dn} = \frac{0.75 A_{vn} f_u}{\sqrt{3} \gamma_{m1}}$ $= 1 \times \frac{(260 - (6 \times 20.0)) \times 12.0 \times 410}{\sqrt{3} \times 1.25}$ $= 516.6$  <i>[Ref.AISC Sect.J4]</i>	



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Block Shear Capacity in Shear (kN)		$V_{db1} = \frac{A_{vg}f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9A_{tn}f_u}{\gamma_{m1}}$ $V_{db2} = \frac{0.9A_{vn}f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg}f_y}{\gamma_{m0}}$ $V_{db} = \min(V_{db1}, V_{db2}) = 436.33$ <p>[Ref. IS 800 : 2007, Cl. 6.4]</p>	
Shear Capacity (kN)	225.0	$V_d = \min(S_c, V_{dn}, V_{db})$ $= \min(245.64, 516.6, 436.33)$ $= 245.64$ <p>[Ref. IS 800 : 2007, Cl. 6.1]</p>	Pass
Tension Yielding Capacity (kN)		$T_{dg} = \frac{A_g f_y}{\gamma_{m0}}$ $A_g = l \times t = 260 \times 12.0$ $= \frac{3120.0 \times 250}{1.1 \times 10^3}$ $= 709.09$ <p>[Ref. IS 800 : 2007, Cl. 6.2]</p>	
Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9A_n f_u}{\gamma_{m1}}$ $= \frac{1 \times 0.9 \times (260 - 6 \times 20.0) \times 12.0 \times 410}{1.25}$ $= 779.33$ <p>[Ref. IS 800 : 2007, Cl. 6.3.1]</p>	



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Block Shear Capacity in Tension (kN)		$T_{dbl1} = \frac{A_{vg}f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9A_{tn}f_u}{\gamma_{m1}}$ $T_{dbl2} = \frac{0.9A_{vn}f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg}f_y}{\gamma_{m0}}$ $T_{db} = \min(T_{db1}, T_{db2}) = 574.68$ [Ref. IS 800 : 2007, Cl. 6.4]	
Tension Capacity (kN)	100.0	$T_d = \min(T_{dg}, T_{dn}, T_{db})$ $= \min(709.09, 779.33, 574.68)$ $= 574.68$ [Ref. IS 800 : 2007, Cl. 6.1]	Pass
Moment Capacity (kNm)	13.95	$M_{dzz} = \frac{\beta_b \times Z_p \times f_y}{\gamma_{mo} \times 10^6}$ $= \frac{1.0 \times 202800.0 \times 250}{1.1 \times 10^6}$ $= 46.09$ [Ref. IS 800 : 2007, Cl. 8.2.1.2]	Pass
Interaction Ratio	$\leq 1$	$\frac{13.95}{46.09} + \frac{100.0}{574.68} = 0.48$ [Ref. IS 800 : 2007, Cl. 10.7]	Pass

## 2.5 Section Design

Check	Required	Provided	Remarks
Shear Yielding Capacity (kN)		$V_{dy} = \frac{A_v f_y}{\sqrt{3} \gamma_{mo}}$ $= \frac{340.0 \times 9.0 \times 350}{\sqrt{3} \times 1.1 \times 1000}$ $= 562.13$ [Ref. IS 800 : 2007, Cl. 10.4.3]	



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Allowable Shear Capacity (kN)	$V = 225.0$	$V_d = 0.6 V_{dy}$ $= 0.6 \times 562.13$ $= 337.28$ <p>[Limited to low shear]</p>	Pass
Shear Rupture Capacity (kN)		$V_{dn} = \frac{0.75 A_{vn} f_u}{\sqrt{3} \gamma_{m1}}$ $= 1 \times \frac{(340.0 - (6 \times 20.0)) \times 9.0 \times 490}{\sqrt{3} \times 1.25}$ $= 727.65$ <p>[Ref. AISC Sect. J4]</p>	
Block Shear Capacity in Shear (kN)		$V_{db1} = \frac{A_{vg} f_y}{\sqrt{3} \gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $V_{db2} = \frac{0.9 A_{vn} f_u}{\sqrt{3} \gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $V_{db} = \min(V_{db1}, V_{db2}) = 420.44$ <p>[Ref. IS 800 : 2007, Cl. 6.4]</p>	
Shear Capacity (kN)	225.0	$V_d = \min(V_{dn}, V_{db})$ $= \min(337.28, 727.65, 420.44)$ $= 337.28$ <p>[Ref. IS 800 : 2007, Cl. 6.1]</p>	Pass
Tension Yielding Capacity (kN)		$T_{dg} = \frac{A_g f_y}{\gamma_{m0}}$ $A_g = l \times t = 340.0 \times 9.0$ $= \frac{3060.0 \times 350}{1.1 \times 10^3}$ $= 973.64$ <p>[Ref. IS 800 : 2007, Cl. 6.2]</p>	



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

Check	Required	Provided	Remarks
Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9A_n f_u}{\gamma_{m1}}$ $= \frac{1 \times 0.9 \times (340.0 - 6 \times 20.0) \times 9.0 \times 490}{1.25}$ $= 698.54$ <p>[Ref. IS 800 : 2007, Cl. 6.3.1]</p>	
Block Shear Capacity in Tension (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = \min(T_{db1}, T_{db2}) = 548.98$ <p>[Ref. IS 800 : 2007, Cl. 6.4]</p>	
Tension Capacity (kN)	100.0	$T_d = \min(T_{dg}, T_{dn}, T_{db})$ $= \min(973.64, 698.54, 548.98)$ $= 548.98$ <p>[Ref. IS 800 : 2007, Cl. 6.1]</p>	Pass
Moment Capacity (kNm)	13.95	$M_{dzz} = \frac{\beta_b \times Z_p \times f_y}{\gamma_{mo} \times 10^6}$ $= \frac{1.0 \times 1400000.0 \times 350}{1.1 \times 10^6}$ $= 445.45$ <p>[Ref. IS 800 : 2007, Cl. 8.2.1.2]</p>	Pass
Interaction Ratio	$\leq 1$	$\frac{13.95}{445.45} + \frac{100.0}{548.98} = 0.21$ <p>[Ref. IS 800 : 2007, Cl. 10.7]</p>	Pass



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

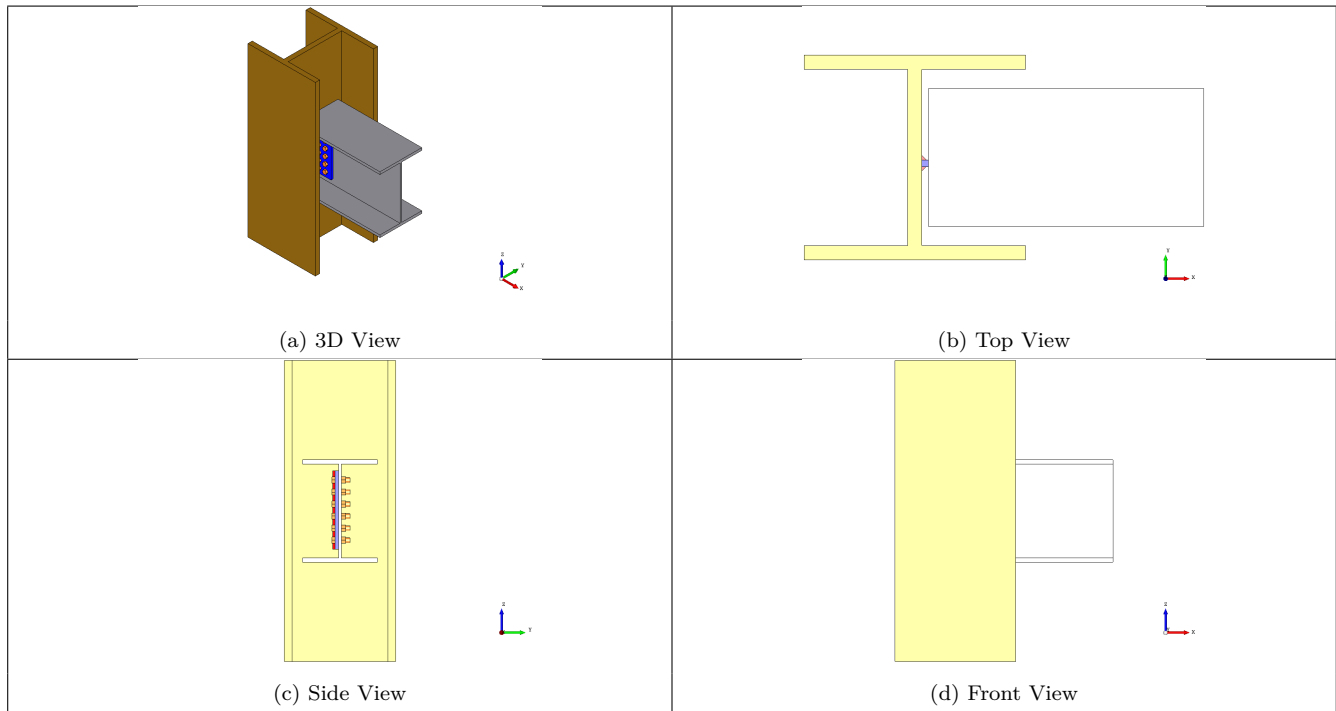
## 2.6 Weld Design

Check	Required	Provided	Remarks
Min. Weld Size (mm)	$t_{w_{min}}$ based on thinner part $= 12$ or $12$  $s_{min}$ based on thicker part $= 6$  [Ref IS 800 : 2007, Table 21 (Cl10.5.2.3)]	8	Pass
Max. Weld Size (mm)	Thickness of thinner part $= \min(26, 12.0) = 12.0$  $s_{max} = 12$  [Ref. IS 800 : 2007, Cl. 10.5.3.1]	8	Pass
Weld Strength (N/mm)	$R_w = \sqrt{(T_{wh} + A_{wh})^2 + (T_{wv} + V_{wv})^2}$  $T_{wh} = \frac{M \times y_{max}}{I_{pw}} = \frac{13950000.0 \times 122.0}{2421130.67}$ $T_{wv} = \frac{M \times x_{max}}{I_{pw}} = \frac{13950000.0 \times 0.0}{2421130.67}$ $V_{wv} = \frac{V}{l_w} = \frac{225000.0}{488}$ $A_{wh} = \frac{A}{l_w} = \frac{100000.0}{488}$  $R_w = \sqrt{(702.94 + 204.92)^2 + (0.0 + 461.07)^2}$ $= 1018.22$	$f_w = \frac{t_t f_u}{\sqrt{3} \gamma_{mw}}$ $= \frac{5.6 \times 410}{\sqrt{3} \times 1.25}$ $= 1060.48$  [Ref. IS 800 : 2007, Cl. 10.5.7.1.1]	Pass



Company Name	IIT Bombay	Project Title	Sample Connection Design
Group/Team Name	Osdag	Subtitle	Fin Plate
Designer	Engineer #1	Job Number	1.1.1.2.1
Date	17 /12 /2020	Client	Yogesh D Pisal, Aker Powergas, Mumbai

### 3 3D Views



### 4 Design Log