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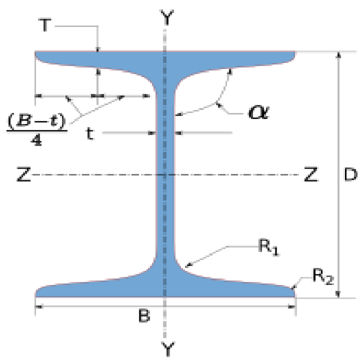
Group/Team Name	LoremIpsum	Subtitle	
Designer	LoremIpsum	Job Number	123
Date	26 /05 /2020	Client	LoremIpsum

1 Input Parameters

<table>
<tr><td colspan="3">Module</td><td colspan="2">Beam Coverplate Connection</td></tr>
<tr><td colspan="3">MainModule</td><td colspan="2">Moment Connection</td></tr>
<tr><td colspan="3">Moment(kNm)*</td><td colspan="2">50.0</td></tr>
<tr><td colspan="3">Shear (kN)*</td><td colspan="2">50.0</td></tr>
<tr><td colspan="3">Axial (kN) *</td><td colspan="2">30.0</td></tr>
<tr><td colspan="5">Section</td></tr>
<tr><td rowspan="14">
</td><td colspan="2">Beam Section *</td><td colspan="2">NPB 600x220x122.4</td></tr>
<tr><td colspan="2">Preferences</td><td colspan="2">Outside</td></tr>
<tr><td colspan="2">Material *</td><td colspan="2">E 250 (Fe 410 W)A</td></tr>
<tr><td colspan="2">Ultimate strength, fu (MPa)</td><td colspan="2">410</td></tr>
<tr><td>Yield Strength , fy (MPa)</td><td>250</td><td>R1(mm)</td><td>2.4</td></tr>
<tr><td>Mass</td><td>122.45</td><td>R2(mm)</td><td>0.0</td></tr>
<tr><td>Area(mm2) - A</td><td>15600.0</td><td>Iz(mm4)</td><td>920834000.0</td></tr>
<tr><td>D(mm)</td><td>600.0</td><td>Iy(mm4)</td><td>33828700.0</td></tr>
<tr><td>B(mm)</td><td>220.0</td><td>rz(mm)</td><td>243.0</td></tr>
<tr><td>t(mm)</td><td>12.0</td><td>ry(mm)</td><td>46.6</td></tr>
<tr><td>T(mm)</td><td>19.0</td><td>Zz(mm3)</td><td>3069450.0</td></tr>
<tr><td>FlangeSlope</td><td>90</td><td>Zy(mm3)</td><td>307530.0</td></tr>
<tr><td colspan="5">Bolt Details</td></tr>
<tr><td colspan="3">Diameter (mm)*</td><td colspan="2">[12.0, 16.0, 20.0, 24.0, 30.0, 36.0]</td></tr>
<tr><td colspan="3">Grade *</td><td colspan="2">[3.6, 4.6, 4.8, 5.6, 5.8, 6.8, 8.8, 9.8, 10.9, 12.9]</td></tr>
<tr><td colspan="3">Type *</td><td colspan="2">Bearing Bolt</td></tr>
<tr><td colspan="3">Bolt hole type</td><td colspan="2">Standard</td></tr>
<tr><td colspan="3">Slip factor (µ_f)</td><td colspan="2">0.3</td></tr>
<tr><td colspan="3">Type of edges</td><td colspan="2">a - Sheared or hand flame cut</td></tr>
<tr><td colspan="3">Gap between beam and
support (mm)</td><td colspan="2">10.0</td></tr>
<tr><td colspan="3">Are the members exposed to
corrosive influences</td><td colspan="2">False</td></tr>
</table>

2 Design Checks

2.1 Member Capacity

Check	Required	Provided	Remarks
Axial Capacity Member Ac (kN)		$A_c = \frac{A * f_y}{\gamma_{m0} * 10^3}$ $= \frac{15600.0 * 250}{1.1 * 10^3}$ $= 3545.45$	
Shear Capacity Member Sc (kN)		$S_c = \frac{A_v * f_y}{\sqrt{3} * \gamma_{mo} * 10^3}$ $= \frac{562.0 * 12.0 * 250}{\sqrt{3} * 1.1 * 10^3}$ $= 884.92$	
Plastic Moment Capacity Pmc (kNm)		$Pmc = \frac{\beta_b * Z_p * fy}{\gamma_{mo} * 10^6}$ $= \frac{1 * 947532.0 * 250}{1.1 * 10^6}$ $= 215.35$	
Moment Deformation Criteria Mdc (kNm)		$Mdc = \frac{1.5 * Z_e * fy}{1.1 * 10^6}$ $= \frac{1.5 * 3069450.0 * 250}{1.1 * 10^6}$ $= 1046.4$	
Moment Capacity Member Mc (kNm)		$M_c = min(Pmc, Mdc)$ $= min(215.35, 1046.4)$ $= 215.35$	

2.2 Load Consideration

Check	Required	Provided	Remarks
Applied Axial Load Au (kN)	$Ac_{min} = 0.3 * A_c$ $= 0.3 * 3545.45$ $= 1063.64$ $Ac_{max} = Ac$ $= 3545.45$	$A_u = 1063.64$	Pass
Applied Shear Load Vu (kN)	$Vc_{min} = 0.6 * S_c$ $= 0.6 * 884.92$ $= 530.95$ $Vc_{max} = Sc$ $= 884.92$	$V_u = 530.95$	Pass
Applied Moment Load Mu (kNm)	$Mc_{min} = 0.5 * M_c$ $= 0.5 * 215.35$ $= 107.67$ $Mc_{max} = Mc$ $= 215.35$	$M_u = 107.67$	Pass
Forces Carried by Web		$A_w = Axial\ force\ in\ web$ $= \frac{(D - 2 * T) * t * Au}{A}$ $= \frac{(600.0 - 2 * 19.0) * 12.0 * 1063.64}{15600.0}$ $= 459.82\ kN$ $M_w = Moment\ in\ web$ $= \frac{Z_w * Mu}{Z}$ $= \frac{947532.0 * 107.67}{3512400.0}$ $= 29.05\ kNm$	
Forces Carried by Flange		$A_f = Axial\ force\ in\ flange$ $= \frac{Au * B * T}{A}$ $= \frac{1063.64 * 220.0 * 19.0}{15600.0}$ $= 285.0\ kN$ $M_f = Moment\ in\ flange$ $= Mu - M_w$ $= 107.67 - 29.05$ $= 78.63\ kNm$ $F_f = flange\ force$ $= \frac{M_f * 10^3}{D - T} + A_f$ $= \frac{78.63 * 10^3}{600.0 - 19.0} + 285.0$ $= 420.33\ kN$	

2.3 Initial Member Check

Check	Required	Provided	Remarks
Flange Tension Yielding Capacity (kN)	$F_f = 420.33$	$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}}$ $= \frac{1 * 220.0 * 19.0 * 250}{1.1}$ $= 950.0$	Pass
Web Tension Yielding Capacity (kN)	$A_w = 459.82$	$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}}$ $= \frac{1 * 562.0 * 12.0 * 250}{1.1}$ $= 1533$	Pass

2.4 Initial flange plate height check

Check	Required	Provided	Remarks
flange_plate.Height	Outer.b >= 50	$Outer.b = 220.0$	Pass

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2.5 Flange plate thickness

Check	Required	Provided	Remarks
Thickness (mm)*	$T = 19.0$	$t_f = 20.0$	Pass
Plate Area check (mm2)	$pt.area >=$ $connected\ member\ area * 1.05$ $= 4389.0$	$outer.b = B$ $= 220.0$ $pt.area = 20.0 * 220.0$ $= 4400.0$	Pass

2.6 Web plate thickness

Check	Required	Provided	Remarks
Thickness (mm)*	$t = 6.0$	$t_w = 8.0$	Pass
Plate Area check (mm2)	$pt.area >=$ $connected\ member\ area * 1.05$ $= 6325.2$	$web\ b = D - (2 * T) - (2 * r_1)$ $= 600.0 - (2 * 19.0) - (2 * 2.4)$ $= 502.0$ $pt.area = 8.0 * 2 * 502.0$ $= 8032.0$	Pass

2.7 Web Spacing Checks

Check	Required	Provided	Remarks
Min.Diameter (mm)		$d = 12.0$	
Min. Gauge (mm)	$p/g_{min} = 2.5\ d$ $=2.5 * 12.0 \quad = 30.0$	$g = 50\ (Row\ Limit\ (r_l) = 2)$	
Min. Edge Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 13.0 = 22.1$	40	
Spacing Check	$depth = 2 * e + (r_l - 1) * g$ $= 2 * 40 + (2.0 - 1) * 50$ $= 130.0$	502.0	Pass

2.8 Flange Spacing Checks

Check	Required	Provided	Remarks
Min.Diameter (mm)		$d = 12.0$	
Min. Gauge (mm)	$p/g_{min} = 2.5\ d$ $= 2.5 * 12.0 \quad = 30.0$	$g = 0.0$ ($Row\ Limit\ (r_l) = 1$)	
Min. Edge Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 13.0 = 22.1$	40	
Spacing Check	$depth = 2 * e + (r_l - 1) * g$ $= 2 * 40 + (1.0 - 1) * 50$ $= 80.0$	101.6	Pass

2.9 Flange Bolt Checks

Check	Required	Provided	Remarks
Diameter (mm)	Bolt Quantity Optimisation	$d = 20.0$	
Grade	Bolt Grade Optimisation	10.9	
Bolt.fu		1000.0	
Bolt.fy		900.0	
Hole Diameter (mm)		$d_0 = 22.0$	
Shear Capacity (kN)		$V_{dsb} = \frac{f_{ub}\ n_n\ A_{nb}}{\sqrt{3}\ \gamma_{mb}}$ $= \frac{1000.0 * 1 * 245}{\sqrt{3}\ *\ 1.25}$ $= 113.16$	
Bearing Capacity (kN)		$V_{dpb} = \frac{2.5\ k_b\ d\ t\ f_u}{\gamma_{mb}}$ $= \frac{2.5\ * 0.51 * 20.0 * 19.0 * 410}{1.25}$ $= 158.92$	
Bolt Capacity (kN)		$V_{db} = min\ (V_{dsb}, V_{dpb})$ $= min\ (113.16, 158.92)$ $= 113.16$	
No of Bolts	$R_u = \sqrt{V_u^2 + A_u^2}$ $n_{trial} = R_u/V_{bolt}$ $R_u = \frac{\sqrt{0.0^2 + 420.33^2}}{113.16}$ $= 8$	8	
No of Columns		$n_c = 4$	
No of Rows		$n_r = 2$	
Min. Pitch (mm)	$p/g_{min} = 2.5\ d$ $= 2.5 * 20.0 \quad = 50.0$	50	Pass
Max. Pitch (mm)	$p/g_{max} = \min(32\ t,\ 300\ mm)$ $= \min(32 *\ 19.0,\ 300\ mm)$ $= 300$	50	Pass
Min. Gauge (mm)	$p/g_{min} = 2.5\ d$ $= 2.5 * 20.0 \quad = 50.0$	0.0	N/A
Max. Gauge (mm)	$p/g_{max} = \min(32\ t,\ 300\ mm)$ $= \min(32 *\ 19.0,\ 300\ mm)$ $= 300$	0.0	N/A
Min. End Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 22.0 = 37.4$	40	Pass

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Check	Required	Provided	Remarks
Max. End Distance (mm)	$e/e`_{max} = 12\ t\ \varepsilon$   $\varepsilon = \sqrt{\frac{250}{f_y}}$   $e/e`_{max} = 12\ * 20.0 * \sqrt{\frac{250}{250}}$ $= 240.0$	40	Pass
Min. Edge Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 22.0 = 37.4$	50.8	Pass
Max. Edge Distance (mm)	$e/e`_{max} = 12\ t\ \varepsilon$   $\varepsilon = \sqrt{\frac{250}{f_y}}$   $e/e`_{max} = 12\ * 20.0 * \sqrt{\frac{250}{250}}$ $= 240.0$	50.8	Pass
Bolt Capacity post Long Joint (kN)	$if\ l \geq 15 * d\ then\ V_{rd} = \beta_{ij} * V_{db}$ $if\ l < 15 * d\ then\ V_{rd} = V_{db}$ $where,$ $l = ((nc\ or\ nr) - 1) * (p\ or\ g)$ $\beta_{ij} = 1.075 - l/(200 * d)$ $but\ 0.75 \leq \beta_{ij} \leq 1.0$	$l\ = ((nc\ or\ nr) - 1) * (p\ or\ g)$ $lc = 2 * ((\frac{4}{2} - 1) * 50 + 40) + 10.0$ $= 190.0$ $lr = 2 * ((\frac{2}{2} - 1) * 0.0 + 50.8$ $+ 2.4) + 12.0 = 118.39999999999999$ $l\ = 190.0$ $15 * d = 15 * 20.0 = 300.0$ $since,\ l < 15 * d$ $then\ V_{rd} = V_{db}$ $V_{rd} = 113.16$	
Capacity (kN)	105.08	113.16	Pass

2.10 Web Bolt Checks

Check	Required	Provided	Remarks
Shear Capacity (kN)		$V_{dsb} = \frac{f_{ub}\ n_n\ A_{nb}}{\sqrt{3}\ \gamma_{mb}}$ $= \frac{1000.0 * 2 * 245}{\sqrt{3}\ *\ 1.25}$ $= 226.32$	
Bearing Capacity (kN)		$V_{dpb} = \frac{2.5\ k_b\ d\ t\ f_u}{\gamma_{mb}}$ $= \frac{2.5\ * 0.51 * 20.0 * 12.0 * 410}{1.25}$ $= 100.37$	
Bolt Capacity (kN)		$V_{db} = min\ (V_{dsb}, V_{dpb})$ $= min\ (226.32, 100.37)$ $= 100.37$	
No of Bolts	$R_u = \sqrt{V_u^2 + A_u^2}$ $n_{trial} = R_u/V_{bolt}$ $R_u = \frac{\sqrt{530.95^2 + 459.82^2}}{100.37}$ $= 14$	28	
No of Columns		$n_c = 4$	
No of Rows		$n_r = 7$	
Min. Pitch (mm)	$p/g_{min} = 2.5\ d$ $= 2.5 * 20.0 \quad = 50.0$	50	Pass
Max. Pitch (mm)	$p/g_{max} = \min(32\ t,\ 300\ mm)$ $= \min(32 *\ 8.0,\ 300\ mm)$ $= 256.0$	50	Pass
Min. Gauge (mm)	$p/g_{min} = 2.5\ d$ $= 2.5 * 20.0 \quad = 50.0$	65	Pass
Max. Gauge (mm)	$p/g_{max} = \min(32\ t,\ 300\ mm)$ $= \min(32 *\ 8.0,\ 300\ mm)$ $= 256.0$	65	Pass
Min. End Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 22.0 = 37.4$	40	Pass
Max. End Distance (mm)	$e/e`_{max} = 12\ t\ \varepsilon$ $\varepsilon = \sqrt{\frac{250}{f_y}}$ $e/e`_{max} = 12\ * 8.0 * \sqrt{\frac{250}{250}}$ $= 96.0$	40	Pass
Min. Edge Distance (mm)	$e/e`_{min} = [1.5\ or\ 1.7] * d_0$ $= 1.7 * 22.0 = 37.4$	40	Pass

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Check	Required	Provided	Remarks
Max. Edge Distance (mm)	$e/e`_{max} = 12\ t\ \varepsilon$   $\varepsilon = \sqrt{\frac{250}{f_y}}$   $e/e`_{max} = 12\ * 8.0 * \sqrt{\frac{250}{250}}$ $= 96.0$	40	Pass
Parameters required for bolt force (mm)		$l_n = length\ available$ $l_n = (n_r - 1) * g$ $= (7 - 1) * 65$ $= 390$ $y_{max} = l_n/2$ $= 390/2$ $= 195.0$ $x_{max} = p * (\frac{n_c}{2} - 1)/2$ $= 50 * (\frac{4}{2} + -1)/2$ $= 25.0$	
Moment Demand (kNm		$M_d = (V_u * ecc + M_w)$ $= \frac{(530.95 * 10^3 * 70.0 + 29.05 * 10^6)}{10^6}$ $= 66.21$	
Bolt.Force		$vbv = V_u/(n_r * n_c)$ $= \frac{530.95}{(7 * 4)}$ $= 37.93$ $tmh = \frac{M_d * y_{max}}{\Sigma r_i^2}$ $= \frac{66.21 * 195.0}{245.35}$ $= 52.63$ $tmv = \frac{M_d * x_{max}}{\Sigma r_i^2}$ $= \frac{66.21 * 25.0}{245.35}$ $= 6.75$ $abh = \frac{A_u}{(n_r * n_c)}$ $= \frac{459.82}{(7 * 4)}$ $= 32.84$ $vres = \sqrt{(vbv + tmv)^2 + (tmh + abh)^2}$ $= \sqrt{(37.93 + 6.75)^2 + (52.63 + 32.84)^2}$ $= 96.44$	

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Check	Required	Provided	Remarks
Bolt Capacity post Long Joint (kN)	$if\ l \geq 15*d\ then\ V_{rd} = \beta_{ij} * V_{db}$ $if\ l < 15*d\ then\ V_{rd} = V_{db}$ $where,$ $l = ((nc\ or\ nr) - 1) * (p\ or\ g)$ $\beta_{ij} = 1.075 - l/(200*d)$ $but\ 0.75 \leq \beta_{ij} \leq 1.0$	$l = ((nc\ or\ nr) - 1) * (p\ or\ g)$ $lc = 2*((\frac{4}{2} - 1) * 50 + 40) + 10.0$ $= 190.0$ $lr = (7-1) * 65 = 390$ $l = 390$ $15*d = 15*20.0 = 300.0$ $since,\ l \geq 15*d$ $then\ V_{rd} = \beta_{ij} * V_{db}$ $\beta_{ij} = 1.075 - 390/(200*20.0)$ $= 0.98$ $V_{rd} = 0.98 * 100.37 = 98.36$	
Capacity (kN)	96.44	98.36	Pass

2.11 Outer flange plate Checks

Check	Required	Provided	Remarks
Min. Plate Height (mm)	$min\ flange\ plate\ ht = beam\ width$ $= 220.0$	220.0	Pass
Min. Plate Length (mm)	$2[2 * e_{min} + (\frac{bolt\ lines}{2} - 1) * p_{min})]$ $+ \frac{gap}{2}]$ $= 2 * [(2 * 37.4 + (\frac{4}{2} - 1) * 50.0$ $= + \frac{10.0}{2}]$ $= 259.6$	270.0	Pass
Min.Plate Thickness (mm)	$t_w = 19.0$	20.0	Pass

2.12 Member Checks

Check	Required	Provided	Remarks
Flange Tension Yielding Capacity (kN)		$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}}$ $= \frac{1 * 220.0 * 19.0 * 250}{1.1}$ $= 950.0$	
Flange Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9 * A_n * f_u}{\gamma_{m1}}$ $= \frac{0.9 * (220.0 - 2 * 22.0) * 19.0 * 410}{1.25}$ $= 987.15$	
Flange Block Shear Capacity (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9 * A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = min(T_{db1}, T_{db2}) = 807.89$	
Flange Tension Capacity (kN)	$f_f = 420.33$	$T_d = min(T_{dg}, T_{dn}, T_{db})$ $= min(950.0, 987.15, 807.89)$ $= 807.89$	Pass
Web Tension Yielding Capacity (kN)		$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}}$ $= \frac{1 * 562.0 * 12.0 * 250}{1.1}$ $= 1532.73$	
Web Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9 * A_n * f_u}{\gamma_{m1}}$ $= \frac{0.9 * (562.0 - 7 * 22.0) * 12.0 * 410}{1.25}$ $= 1445.3$	
Web Block Shear Capacity (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9 * A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = min(T_{db1}, T_{db2}) = 1339.06$	
Web Tension Capacity (kN)	$A_w = 459.82$	$T_d = min(T_{dg}, T_{dn}, T_{db})$ $= min(1532.73, 1445.3, 1339.06)$ $= 1339.06$	Pass

2.13 Flange Plate Capacity Checks in Axial-Outside

Check	Required	Provided	Remarks
Tension Yielding Capacity (kN)		$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}} = \frac{1 * 220.0 * 20.0 * 250}{1.1} = 1000.0$	
Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9 * A_n * f_u}{\gamma_{m1}} = \frac{0.9 * (220.0 - 2 * 22.0) * 20.0 * 410}{1.25} = 1039.1$	
Block Shear Capacity (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9 * A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = min(T_{db1}, T_{db2}) = 926.77$	
Plate Tension Capacity (kN)	$f_f = 420.33$	$T_d = min(T_{dg}, T_{dn}, T_{db}) = min(1000.0, 1039.1, 926.77) = 926.77$	Pass

2.14 Web Plate Capacity Checks in Axial

Check	Required	Provided	Remarks
Tension Yielding Capacity (kN)		$T_{dg} = \frac{l * t * f_y}{\gamma_{mo}}$ $= \frac{1 * 470 * 8.0 * 250}{1.1}$ $= 986.74$	
Tension Rupture Capacity (kN)		$T_{dn} = \frac{0.9 * A_n * f_u}{\gamma_{m1}}$ $= \frac{0.9 * (470 - 7 * 22.0) * 8.0 * 1000.0}{1.25}$ $= 1492.53$	
Block Shear Capacity (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9 * A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = min(T_{db1}, T_{db2}) = 1785.42$	
Plate Tension Capacity (kN)	$A_w = 459.82$	$T_d = min(T_{dg}, T_{dn}, T_{db})$ $= min(1709.09, 1492.53, 1785.42)$ $= 1492.53$	Pass

2.15 Web Plate Capacity Checks in Shear

Check	Required	Provided	Remarks
Shear yielding Capacity (V_dy) (kN)		$V_{dy} = \frac{A_v * f_y}{\sqrt{3} * \gamma_{mo}}$ $= \frac{1 * 470 * 8.0 * 250}{\sqrt{3} * 1.1}$ $= 986.74$	
Shear Rupture Capacity (V_dn) (kN)		$V_{dn} = \frac{0.9 * A_{vn} * f_u}{\sqrt{3} * \gamma_{m1}}$ $= \frac{0.9 * (470 - (2.0 * 22.0)) * 8.0 * 410}{\sqrt{3} * 1.25}$ $= 861.71$	
Block Shear Capacity in Shear (V_db) (kN)		$T_{db1} = \frac{A_{vg} f_y}{\sqrt{3}\gamma_{m0}} + \frac{0.9 A_{tn} f_u}{\gamma_{m1}}$ $T_{db2} = \frac{0.9 * A_{vn} f_u}{\sqrt{3}\gamma_{m1}} + \frac{A_{tg} f_y}{\gamma_{m0}}$ $T_{db} = min(T_{db1}, T_{db2}) = 1109.9$	
Plate Shear Capacity (kN)	$V_u = 530.95$	$V_d = min(V_{dy}, V_{dn}, V_{db})$ $= min(986.74, 861.71, 1785.42)$ $= 861.71$	Pass

3 3D View

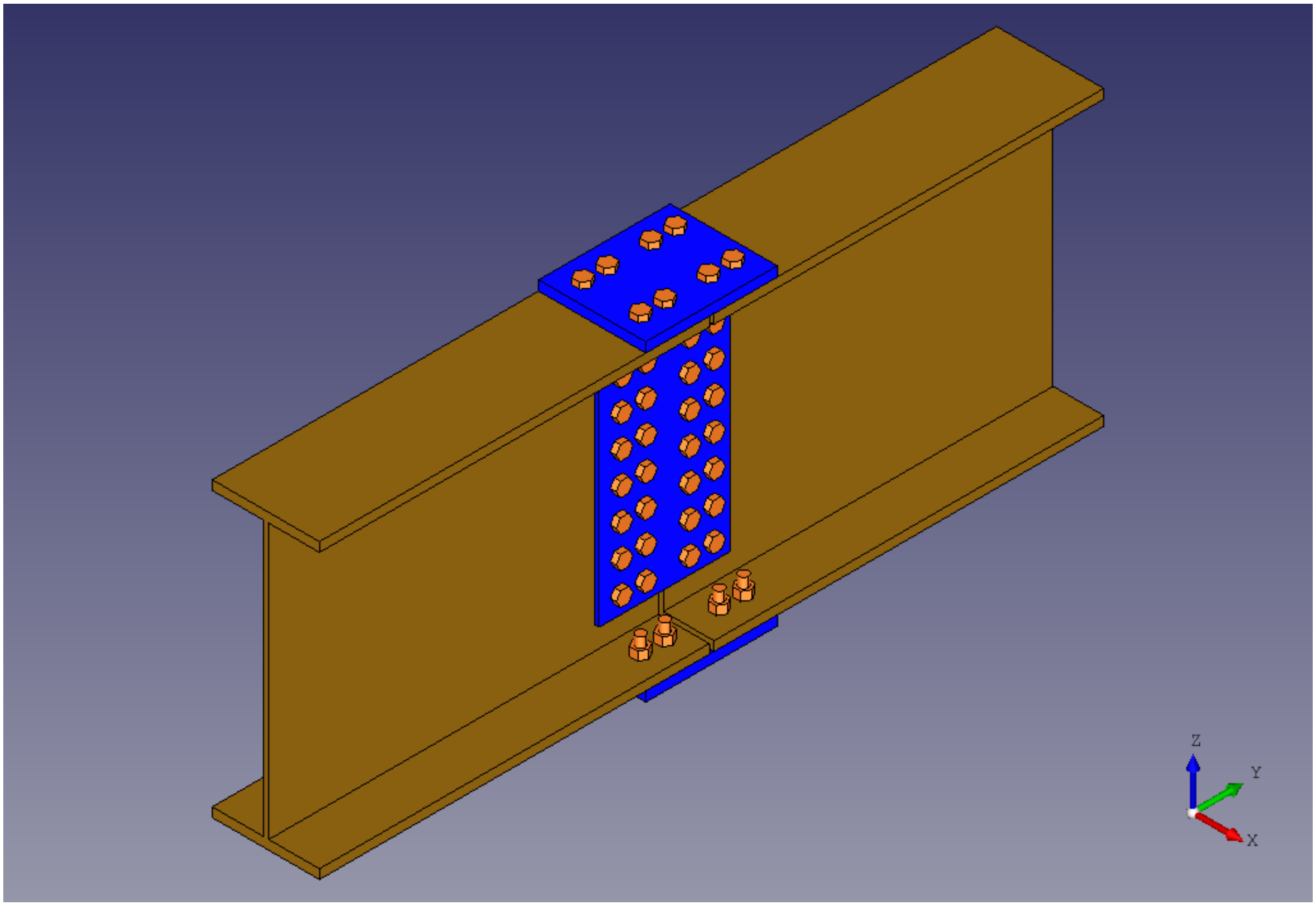

Figure 1: 3D View