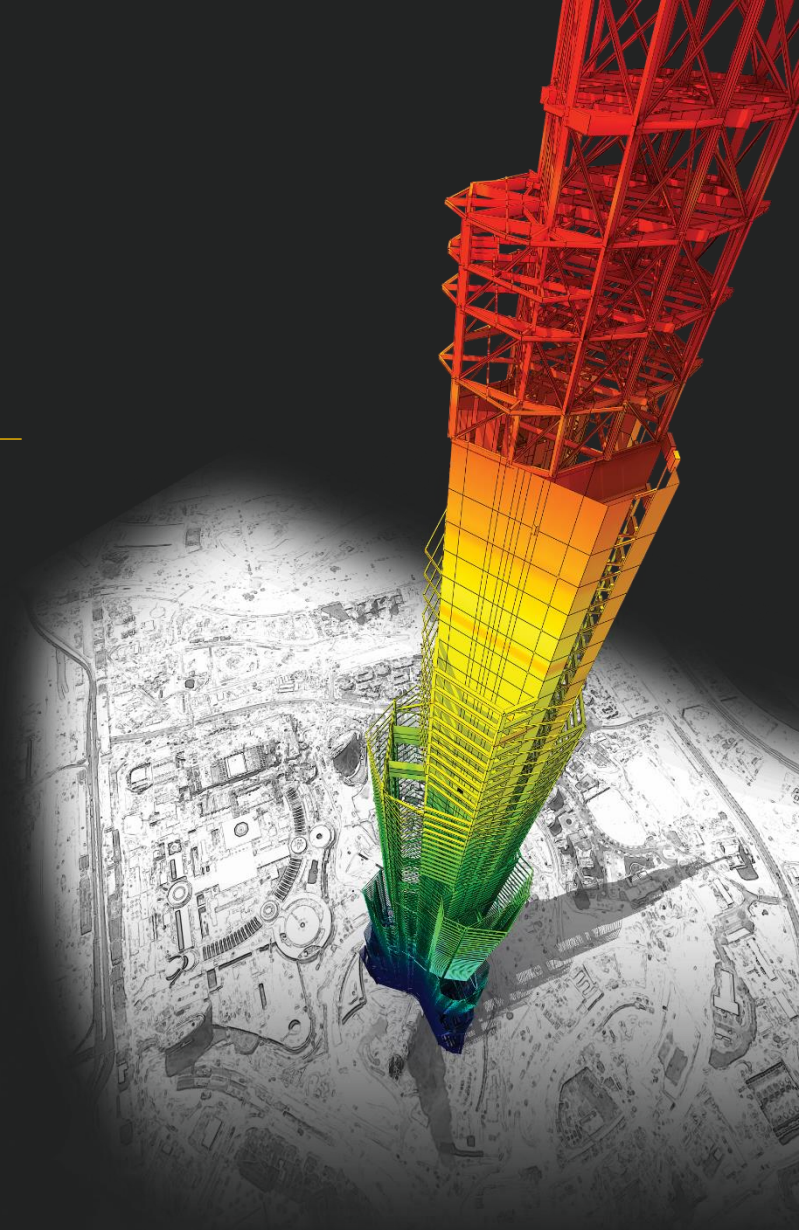




# 天車梁似乎沒考量弱軸應力

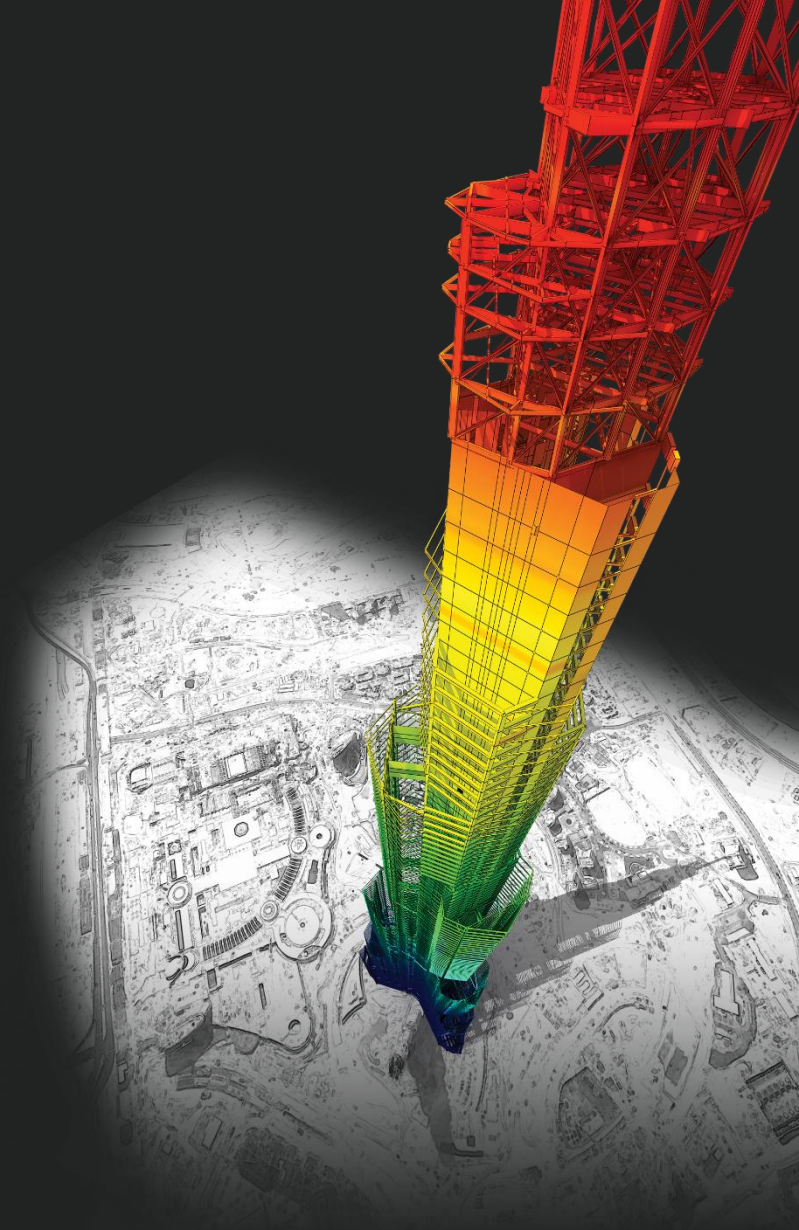


*DESIGN OF General Structures*

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# 回答

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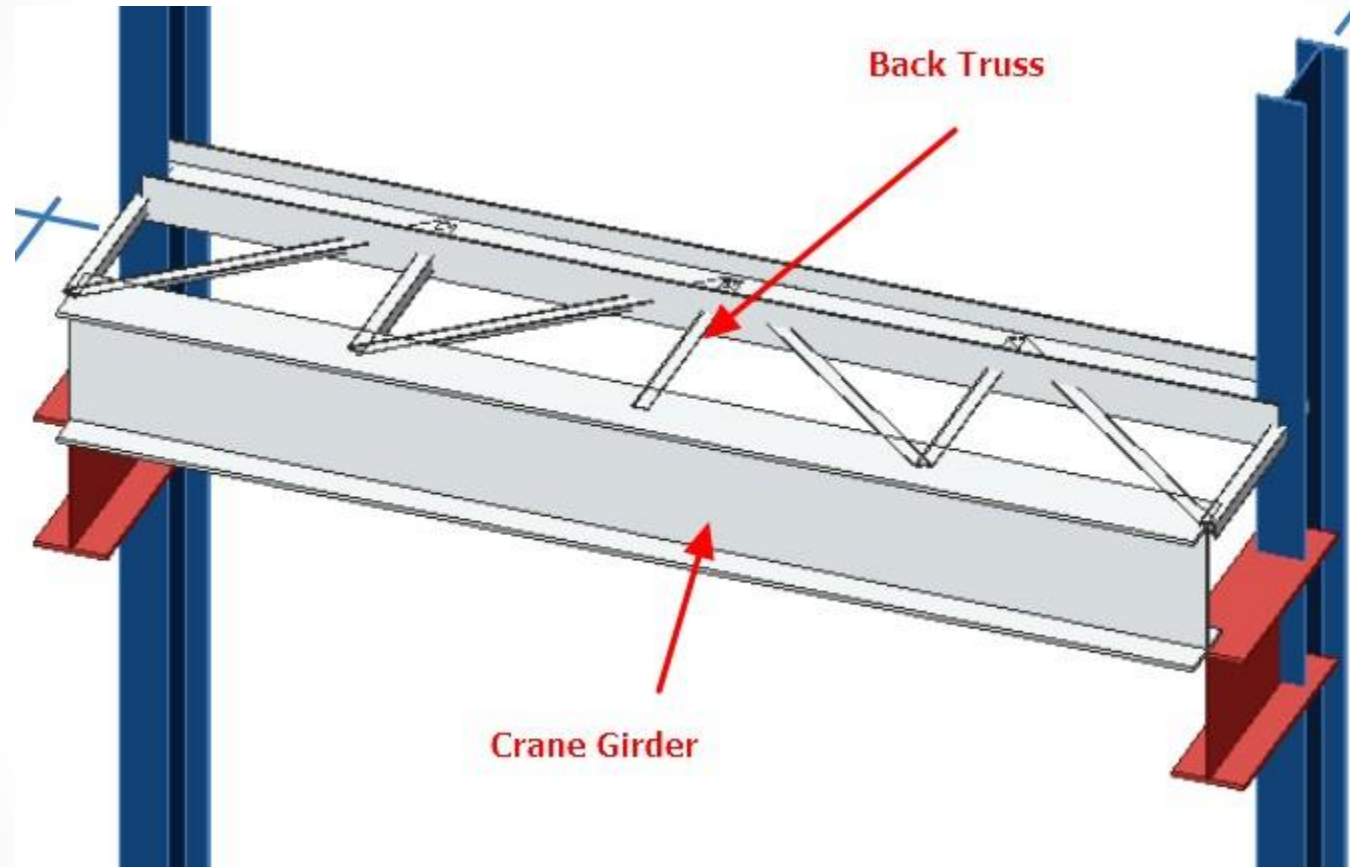


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# 回答

因為您勾選 Back Truss，所以沒考量弱軸應。



# 勾選 "Back Truss"

Start Page Member Member List Drawing Quantity

General  
Member Name: ??6M-30T  
Apply this Member to: Dwg & Report

Material  
Material: SN490

Section  
Shape: H Section  
Use DB: H 400x400x13/21

Section Properties:

H	40.00	cm
B	40.00	cm
tw	1.30	cm
tf	2.10	cm
r	2.20	cm

Cover Plate  
Thickness: 0.00 cm

Girder  
Span: 6.00 m  
Rail Width: 15.00 cm

Back Truss  
Span: 6.00 m  
Depth: 0.50 m

Brace Tension Flang  
 End Stiffener  
Width: 14.30 cm  
Spacing: 1.50 m  
Thickness: 2.20 cm

Mid Stiffener  
Width: 14.30 cm  
Spacing: 1.50 m  
Thickness: 1.90 cm

Crane Information (Wheels)

No.	Dist. (m)	Dead (tonf)	Live (tonf)
1	0.00	4.10	15.00
2	4.30	4.10	15.00

Impact Factor  
kunning vir.: u.10

Fatigue  
No. of Loading Cycles: 20000

Deflection  
Criteria for Deflection: L / 900  
 Check Horizontal Deflection  
Horizontal Criteria: L / 400

Design(F4) Check(F5) Report... Apply(F3)

有 Back Truss

Double click to Zoom

Calculation Result

Serviceability & Stiffener

Check Item	Value	Ratio	Rema
Width-Thickness Ratio			
h/w	24.15		
amax	260	OK(0.093)	
Fatigue			
Maximum Stress (tonf)	814	OK(0.374)	0.66Fy = 2178
Stress Range (tonf)	814	OK(0.108)	FSR = 7533
Web Under Concentrated Force			
Pu,max (tonf)	37.68		
Flange Local Bending (tonf)	40.93	OK(0.921)	$\rho = 0.900$
Local Yielding (tonf)	110	OK(0.341)	$\rho = 1.000$
Crippling (tonf)	87.61	OK(0.430)	$\rho = 0.750$
Side Sway Buckling (tonf)	717	OK(0.053)	$\rho = 0.850$
Comp. Buckling (tonf)	62.91	OK(0.599)	$\rho = 0.900$
Stiffener (End)			
Vu (tonf)	37.68	OK(0.366)	$\rho Vn = 103$
BTR	24.15	62.06	Not required
Shear (TFA) (tonf)	0.000	OK(0.000)	$\rho = 0.000$
Axial Strength (tonf)	0.000	OK(0.000)	$\rho = 0.000$
Stiffener (Mid)			
Vu (tonf)	-36.75	OK(0.357)	$\rho Vn = 103$
BTR	24.15	62.06	Not required

Report

100% Print... Save... Report... Option... Summary Report  Include Input Data

7. Design Force

Vertical Dir.			Horizontal Dir.		Running Dir.
Vu,max	Rmax	Mu,max	Mu	Vu	Fx
37.68tonf	37.68tonf	43.83tonf-m	43.38tonf-m	14.47tonf	92.54tonf

8. Slenderness & Width-Thickness Ratio

Slenderness	BTR	DTR
59.41	9.524	24.15

9. Check Axial Capacity

沒有 Moment Minor Axis (Y)

Compression Strength

Pu (tonf)	Qs	Qs	$\phi P_n$ (tonf)	Pu / $\phi P_n$
92.54	1.000	1.000	513	0.180

10. Check Moment Capacity

[ Calculation Summary ( Moment Capacity ) ]

Check Items	Major Axis (X)	Minor Axis (Y)
Mu (tonf-m)	43.83	0.000
$\lambda_p$	Flange : 9.586, Web : 94.85	Flange : 9.586, Web : -
$\lambda_r$	Flange : 25.23, Web : 144	Flange : 25.23, Web : -
Section Condition	Flange : Compact Web : Compact	Flange : Compact Web : -
$\rho$	0.900	0.900
$\phi M_n$ (tonf-m)	103	50.49
Mu / $\phi M_n$	0.424	0.000

11. Check Interaction of Combined Strength

[ Calculation Summary ( Combined Ratio ) ]

# 不勾选 "Back Truss"

Start Page Member Member List Drawing Quantity

General  
Member Name: ??6M-30T  
Apply this Member to: Dwg & Report

Material: SN490

Section: H Section  
Use DB: H 400x400x13/21

Cover Plate Thickness: 0.00 cm  
Girder Span: 6.00 m, Rail Width: 15.00 cm

Back Truss  
Span: 6.00 m, Depth: 0.50 m

End Stiffener  
Width: 14.30 cm, Spacing: 1.50 m, Thickness: 2.20 cm

Mid Stiffener  
Width: 14.30 cm, Spacing: 1.50 m, Thickness: 1.90 cm

Crane Information (Wheels)

No.	Dist. (m)	Dead (tonf)	Live (tonf)
1	0.00	4.10	15.00
2	4.30	4.10	15.00

Impact Factor: Running Dir. U.L.U

Fatigue: No. of Loading Cycles: 20000

Deflection: Criteria for Deflection L / 900  
 Check Horizontal Deflection  
Horizontal Criteria L / 400

Design(F4) Check(F5) Report... Apply(F3)

Double click to Zoom

沒有 Back Truss

	Value	Unit	Axis	Value	Unit
Xbar	20.000	cm	Asx	112.000	cm <sup>2</sup>
Ybar	20.000	cm	Sx	3330.000	cm <sup>3</sup>
Ix	66600.000	cm <sup>4</sup>	Sy	1120.000	cm <sup>3</sup>
Iy	22400.000	cm <sup>4</sup>	Zx	3670.000	cm <sup>3</sup>
J	273.000	cm <sup>4</sup>	Zy	1700.000	cm <sup>3</sup>
ix	17.500	cm	Cw	8040000.000	cm <sup>6</sup>
iy	10.100	cm	Ixy	0.000	cm <sup>4</sup>

Calculation Result

Serviceability & Stiffener  Strength  Design f

Check Item	Value	Ratio	Rema
Width-Thickness Ratio			
h/w	24.15		
amax	260	OK(0.093)	
Fatigue			
Maximum Stress (tonf)	814	OK(0.374)	0.66Fy = 2178
Stress Range (tonf)	814	OK(0.108)	FSR = 7533
Web Under Concentrated Force			
Pu,max (tonf)	37.68		
Flange Local Bending (tonf)	40.93	OK(0.921)	$\sigma = 0.900$
Local Yielding (tonf)	110	OK(0.341)	$\sigma = 1.000$
Crippling (tonf)	87.61	OK(0.430)	$\sigma = 0.750$
Side Sway Buckling (tonf)	448	OK(0.084)	$\sigma = 0.850$
Comp. Buckling (tonf)	62.91	OK(0.599)	$\sigma = 0.900$
Stiffener (End)			
Vu (tonf)	37.68	OK(0.366)	$\sigma Vn = 103$
BTR	24.15	62.06	Not required
Shear (TFA) (tonf)	0.000	OK(0.000)	$\sigma = 0.000$
Axial Strength (tonf)	0.000	OK(0.000)	$\sigma = 0.000$
Stiffener (Mid)			
Vu (tonf)	-36.75	OK(0.357)	$\sigma Vn = 103$
BTR	24.15	62.06	Not required

Report

100% Print... Save... Report... Option... Summary Report  Include Input Data

7. Design Force

Vertical Dir.		Horizontal Dir.		Running Dir.
Vu,max	Rmax	Mu,max	Mu	Fx
37.68tonf	37.68tonf	43.83tonf-m	43.38tonf-m	5.784tonf

8. Slenderness & Width-Thickness Ratio

Slenderness	BTR	DTR
59.41	9.524	24.15

9. Check Axial Capacity

有 Moment Minor Axis (Y)

Pu (tonf)	Qs	Qs	$\sigma Pn$ (tonf)	Pu / $\sigma Pn$
5.784	1.000	1.000	513	0.0113

10. Check Moment Capacity

[ Calculation Summary ( Moment Capacity ) ]

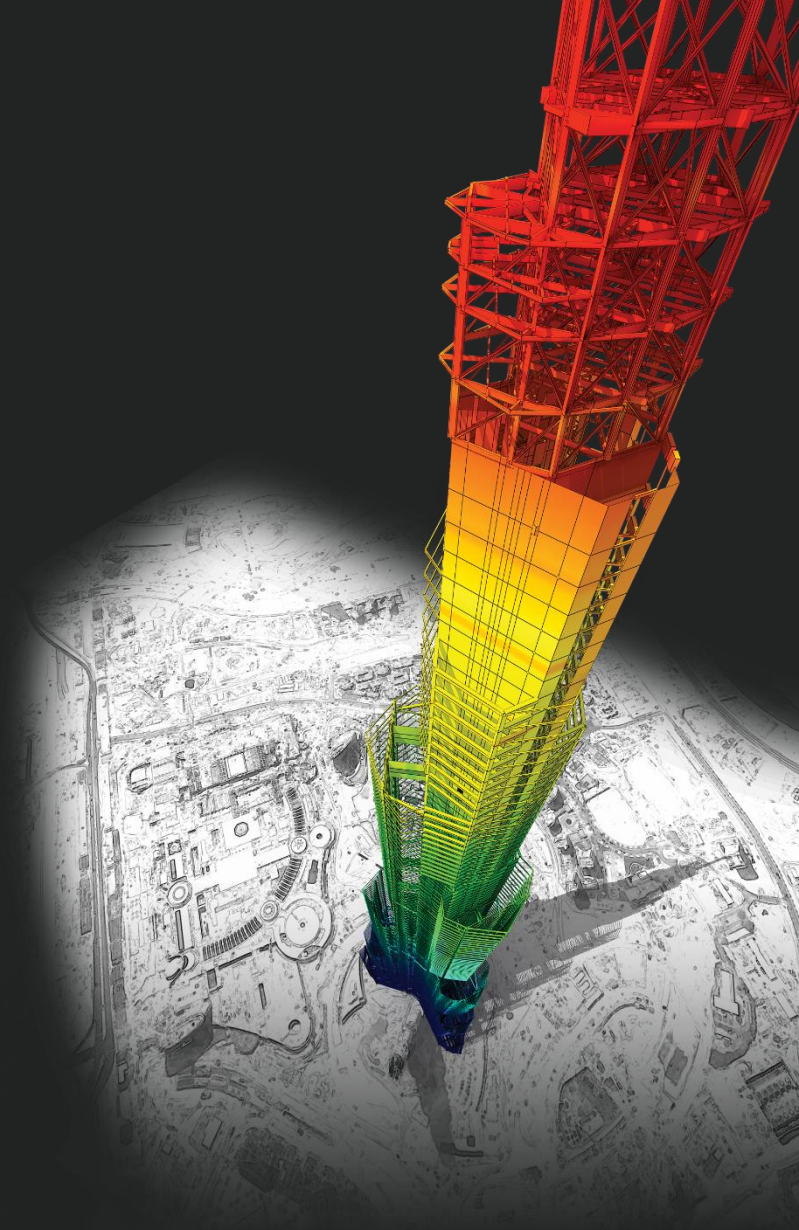
Check Items	Major Axis (X)	Minor Axis (Y)
Mu (tonf-m)	43.83	43.38
$\lambda_o$	Flange : 9.586, Web : 94.85	Flange : 9.586, Web : -
$\lambda_r$	Flange : 25.23, Web : 144	Flange : 25.23, Web : -
Section Condition	Flange : Compact Web : Compact	Flange : Compact Web : -
$\sigma$	0.900	0.900
$\sigma M_n$ (tonf-m)	103	50.49
Mu / $\sigma M_n$	0.424	0.859

11. Check Interaction of Combined Strength

[ Calculation Summary ( Combined Ratio ) ]

# Thank You

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