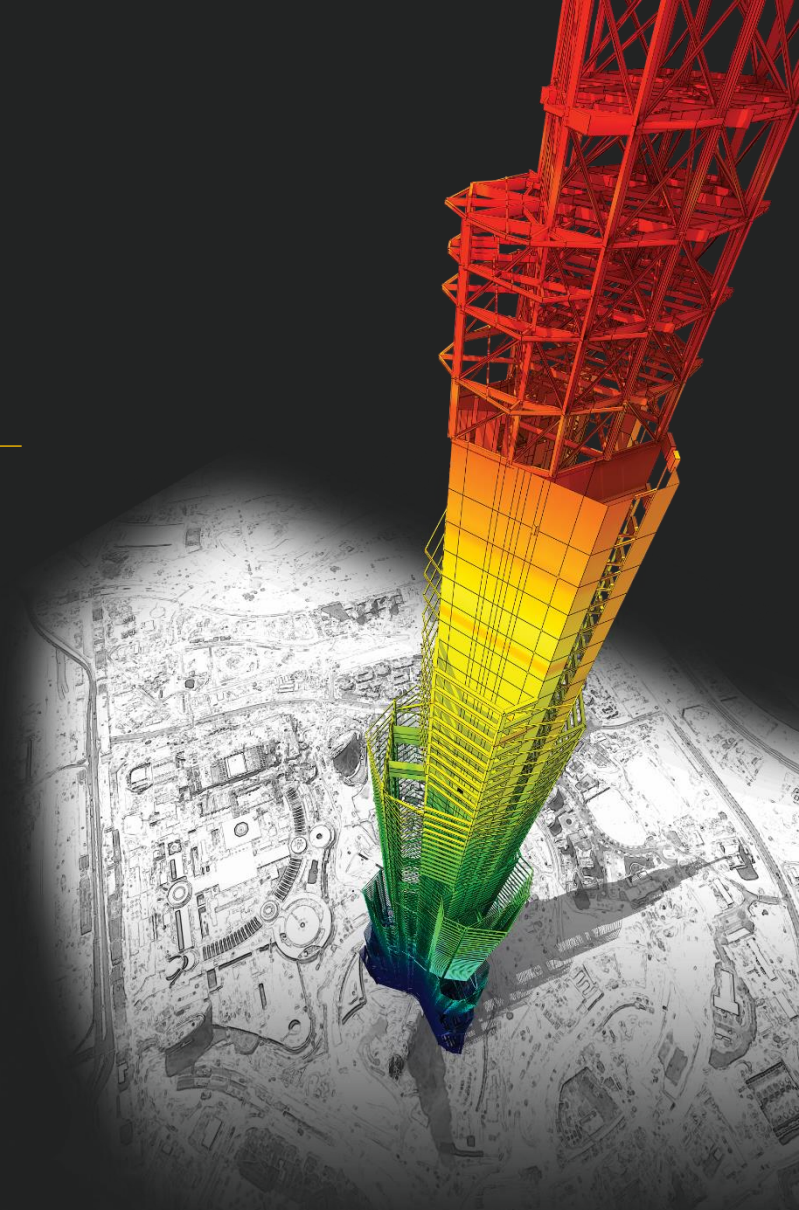


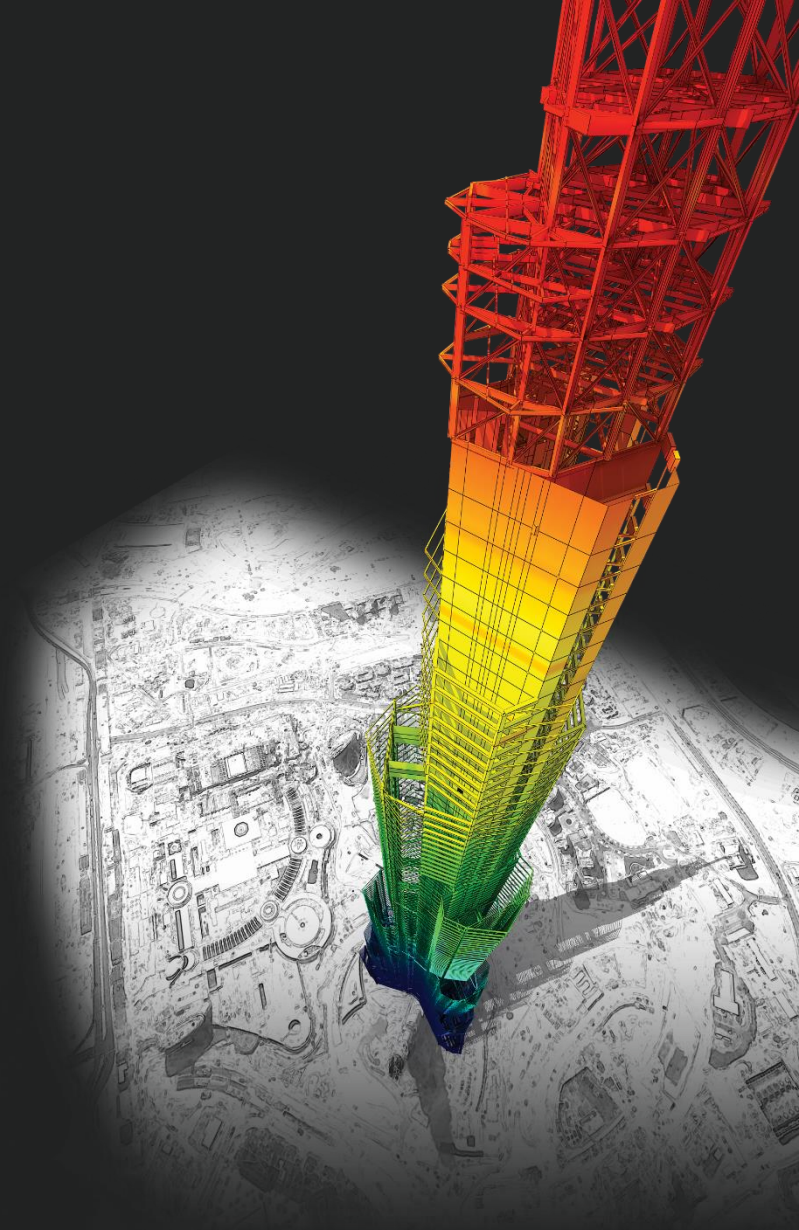
Response Spectrum Scale Factor



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問題



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請教在 Gen – RC 建築樓房應用範例 (分析和設計) YT 影片中，
Response Spectrum Load Case 之 RX 之 Scale Factor 用 1.198 及 RY 用 1.178，是如何計算出來的？

■ Load > Dynamic Loads > RS Load Cases

- 選 Load Case = RX > Scale Factor : **1.198** ; Operations >
- 選 Load Case = RY > Scale Factor : **1.178** ; Operations >

Response Spectrum Load Cases

Spectrum Load Case

Load Case Name: RY

Direction: X-Y

Auto-Search Angle

Major Ortho

Excitation Angle: 90 [deg]

Scale Factor: 1.178

Period Modification Factor: 1

Modal Combination Control: ...

Spectrum Functions

Function Name (Damping Ratio)

Taiwan(2006) (0.05)

Apply Damping Method

Damping Method: ...

Correction by Damping Ratio

Interpolation of Spectral Data

Linear Logarithm

Accidental Eccentricity ...

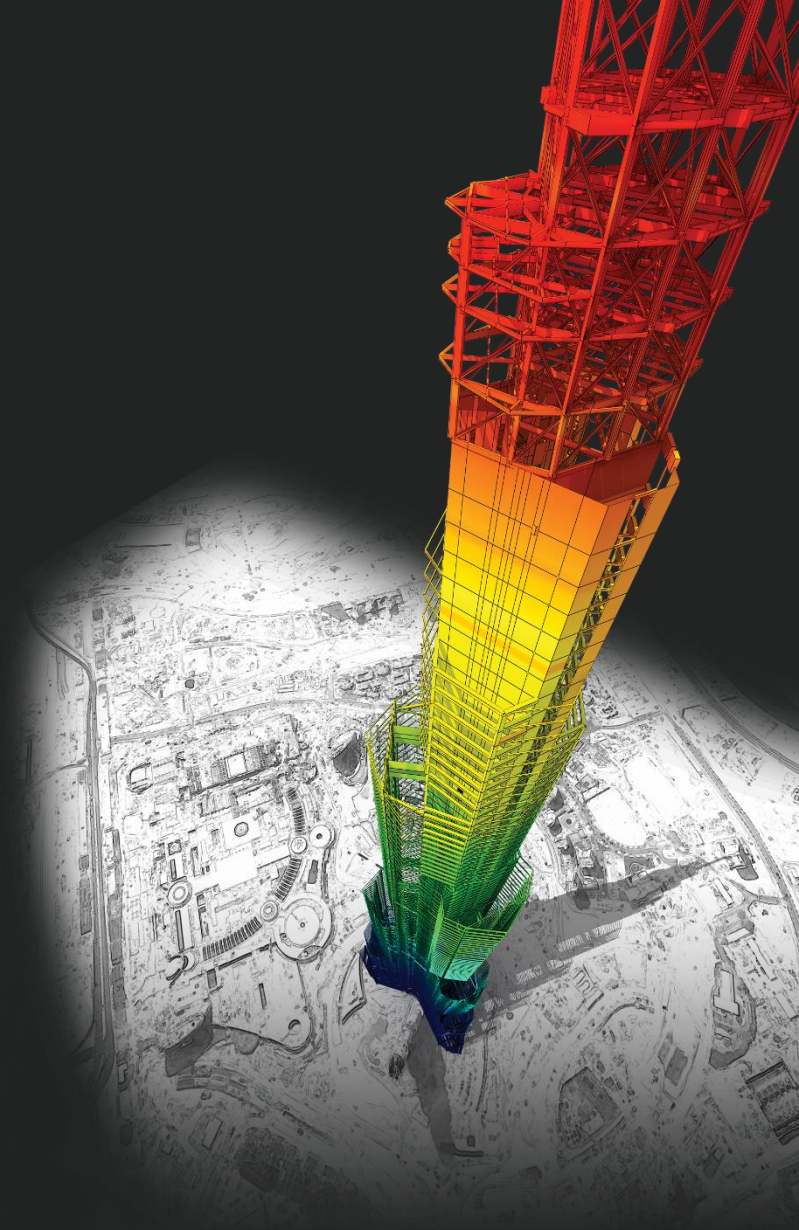
Description: ...

LoadCase	Direction	Scale
RX	X-Y	1.198
RY	X-Y	1.178

Operations

圖 57. 輸入總橫力調整係數

回答



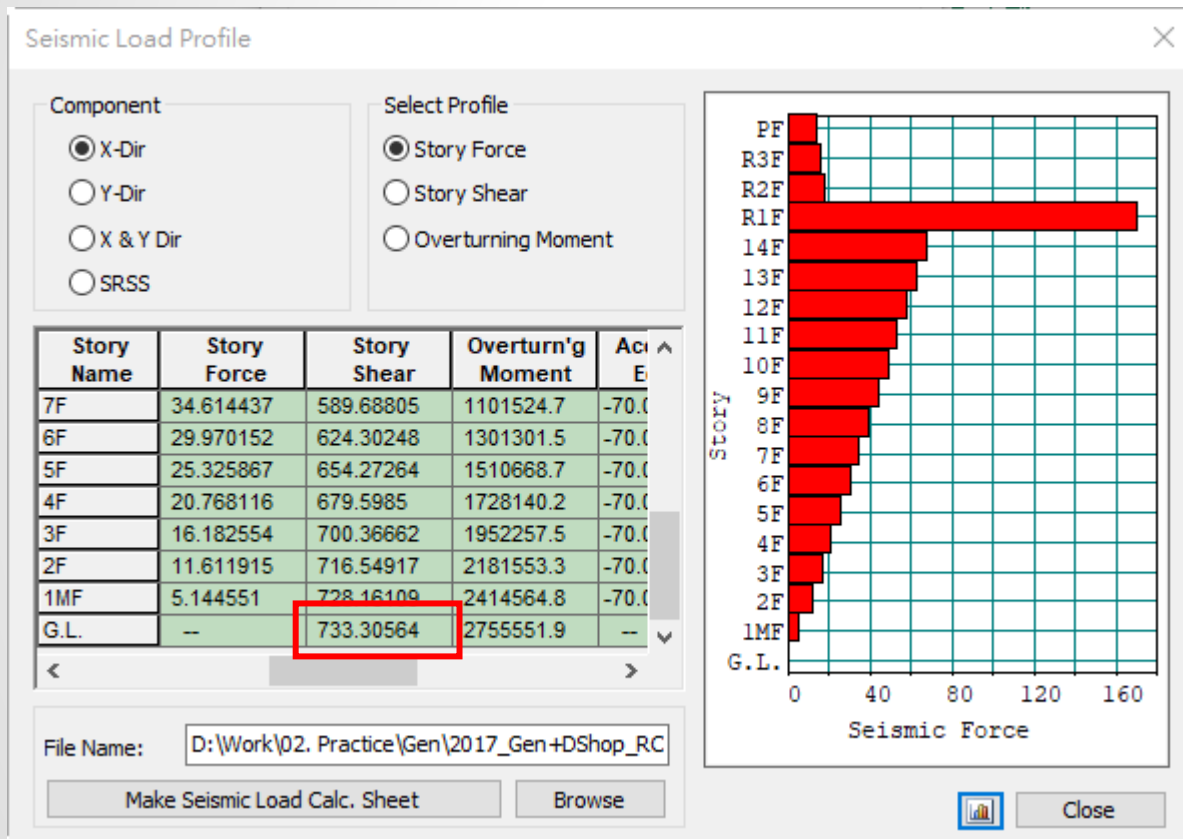
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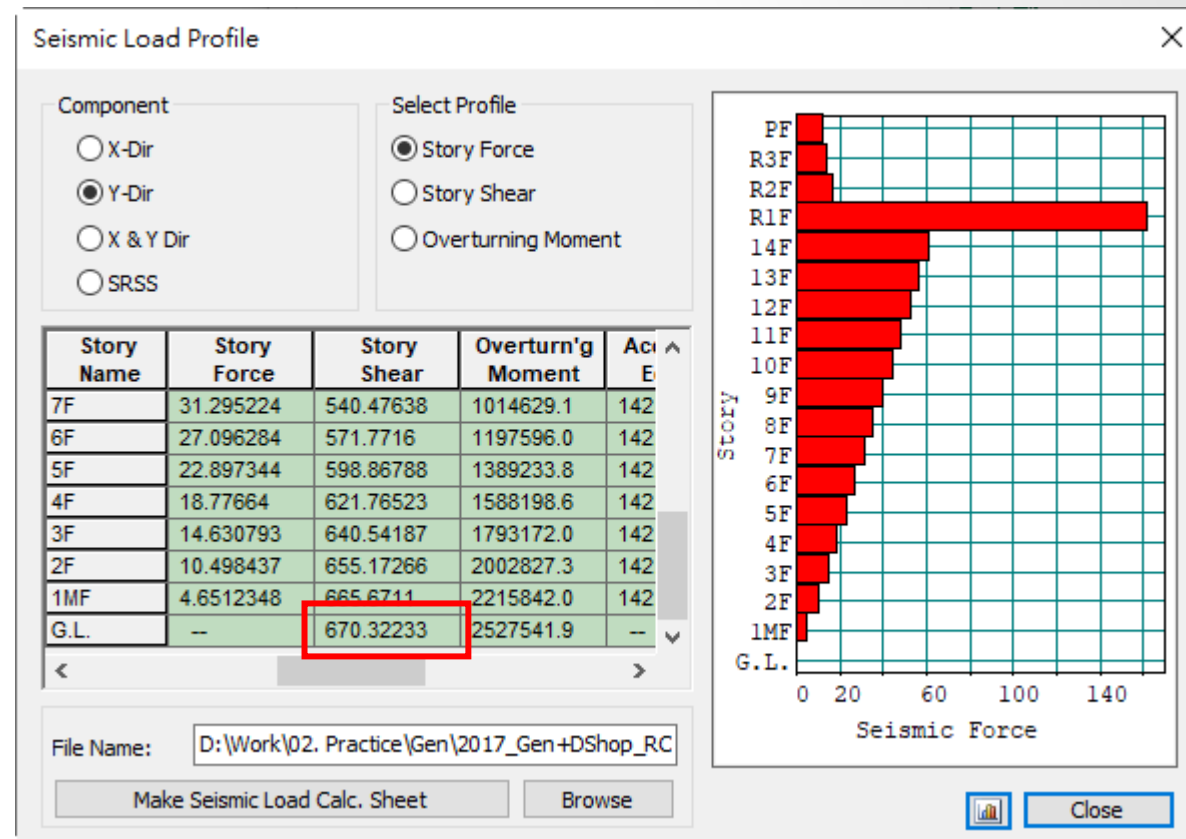
RS Scale Factor = Static Seismic Load 的 Base Shear / RS Seismic Load (Scale Factor = 1) 的 Base Shear。

所以：

1. 看 Static Seismic Load 的 Base Shear。 (在 Load > Static Load > Seismic Load)



Base Shear EX = 733 tonf



Base Shear EY = 670 tonf

2. 在 RS Seismic Load Case > Scale Factor，輸入 1。然後分析您的結構。
 在 Result > Result Tables > Story > Story Shear (Response Spectrum Analysis) > 選 RX 與 RY。

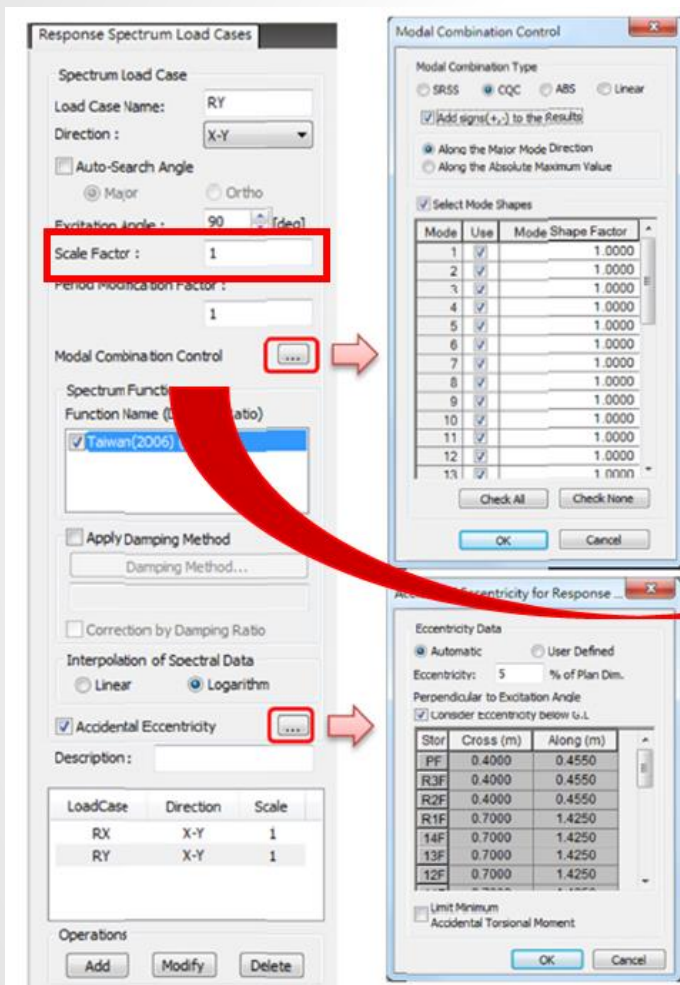


圖 48. 動力反應譜載重狀況設定

- 切換到 “Story Shear Force Coefficient” 表單查看 1F Shear Force 數值。

Shear Force @ 1F
 RX(RS) : 612 tonf
 RY(RS) : 569 tonf

Story	Spectrum	Shear Force		Weight Sum		Story Shear Force Coefficient	
		X (tonf)	Y (tonf)	X (tonf)	Y (tonf)	X	Y
R3F	RX(RS)	22.57	2.88	76.61	76.61	0.2947	0.03727
R2F	RX(RS)	42.74	5.45	182.72	182.72	0.2627	0.03351
R1F	RX(RS)	61.93	7.92	271.23	271.23	0.2283	0.02918
14F	RX(RS)	150.50	19.11	896.83	896.83	0.1736	0.02204
13F	RX(RS)	213.10	26.76	1323.27	1323.27	0.161	0.02022
12F	RX(RS)	267.71	33.13	1779.98	1779.98	0.1504	0.01861
11F	RX(RS)	315.03	38.29	2236.99	2236.99	0.1408	0.01712
10F	RX(RS)	356.12	42.42	2694.01	2694.01	0.1322	0.01575
9F	RX(RS)	392.34	45.60	3151.62	3151.62	0.1245	0.01453
8F	RX(RS)	425.18	48.76	3608.04	3608.04	0.1178	0.01352
7F	RX(RS)	455.78	51.82	4065.05	4065.05	0.1121	0.0127
6F	RX(RS)	484.95	54.81	4522.07	4522.07	0.1072	0.01206
5F	RX(RS)	513.06	57.83	4979.08	4979.08	0.103	0.01162
4F	RX(RS)	539.86	61.26	5436.10	5436.10	0.09931	0.01127
3F	RX(RS)	564.66	64.68	5893.62	5893.62	0.09579	0.01097
2F	RX(RS)	586.32	67.75	6356.18	6356.18	0.09224	0.01066
1MF	RX(RS)	603.57	70.13	6821.97	6821.97	0.08847	0.01028
1F	RX(RS)	611.76	71.21	7170.35	7170.35	0.08532	0.009931
B1F	RX(RS)	611.76	71.21	7170.35	7170.35	0.08532	0.009931
B2F	RX(RS)	611.76	71.21	7170.35	7170.35	0.08532	0.009931
B5	RX(RS)	611.76	71.21	7170.35	7170.35	0.08532	0.009931
R3F	RY(RS)	3.47	23.52	76.61	76.61	0.04525	0.3071
R2F	RY(RS)	6.63	44.23	182.72	182.72	0.04076	0.2718
R1F	RY(RS)	9.63	63.66	271.23	271.23	0.03551	0.2347
14F	RY(RS)	21.06	151.04	896.83	896.83	0.02423	0.1742
13F	RY(RS)	28.73	210.87	1323.27	1323.27	0.02171	0.1594
12F	RY(RS)	35.69	261.00	1779.98	1779.98	0.01971	0.1466
11F	RY(RS)	40.09	302.61	2236.99	2236.99	0.01792	0.1383
10F	RY(RS)	43.89	337.26	2694.01	2694.01	0.01629	0.1282
9F	RY(RS)	46.79	366.97	3151.62	3151.62	0.01485	0.1185
8F	RY(RS)	49.23	393.06	3608.04	3608.04	0.01364	0.1092
7F	RY(RS)	51.50	419.51	4065.05	4065.05	0.01269	0.1032
6F	RY(RS)	54.18	445.12	4522.07	4522.07	0.01198	0.09843
5F	RY(RS)	57.21	471.05	4979.08	4979.08	0.01149	0.09461
4F	RY(RS)	60.62	496.84	5436.10	5436.10	0.01115	0.0914
3F	RY(RS)	64.17	521.43	5893.62	5893.62	0.01089	0.08845
2F	RY(RS)	67.45	543.20	6356.18	6356.18	0.01061	0.08546
1MF	RY(RS)	70.03	560.65	6821.97	6821.97	0.01027	0.08218
1F	RY(RS)	71.21	568.79	7170.35	7170.35	0.009931	0.07933
B1F	RY(RS)	71.21	568.79	7170.35	7170.35	0.009931	0.07933
B2F	RY(RS)	71.21	568.79	7170.35	7170.35	0.009931	0.07933
B5	RY(RS)	71.21	568.79	7170.35	7170.35	0.009931	0.07933

圖 56. 動力反應譜分析層剪力結果

3. 計算 RS Seismic Load 的 Scale Factor ◦

$$\text{Scale Factor} = \frac{\text{Static Seismic Load 的 Base Shear}}{\text{RS Seismic Load (Scale Factor = 1) 的 Base Shear}}$$

$$\text{Scale Factor } X = \frac{733}{612} = 1.198$$

$$\text{Scale Factor } Y = \frac{670}{569} = 1.178$$

■ Load > Dynamic Loads > RS Load Cases

- 選 Load Case = RX > Scale Factor : 1.198 ; Operations >

Modify

- 選 Load Case = RY > Scale Factor : 1.178 ; Operations >

Modify

Response Spectrum Load Cases

Spectrum Load Case

Load Case Name: RY

Direction: X-Y

Auto-Search Angle

Major Ortho

Excitation Angle: 90 [deg]

Scale Factor: 1.178

Period Modification Factor: 1

Model Combination Control: ...

Spectrum Functions

Function Name (Damping Ratio)

Taiwan(2006) (0.05)

Apply Damping Method

Damping Method: ...

Correction by Damping Ratio

Interpolation of Spectral Data

Linear Logarithm

Accidental Eccentricity

Description: ...

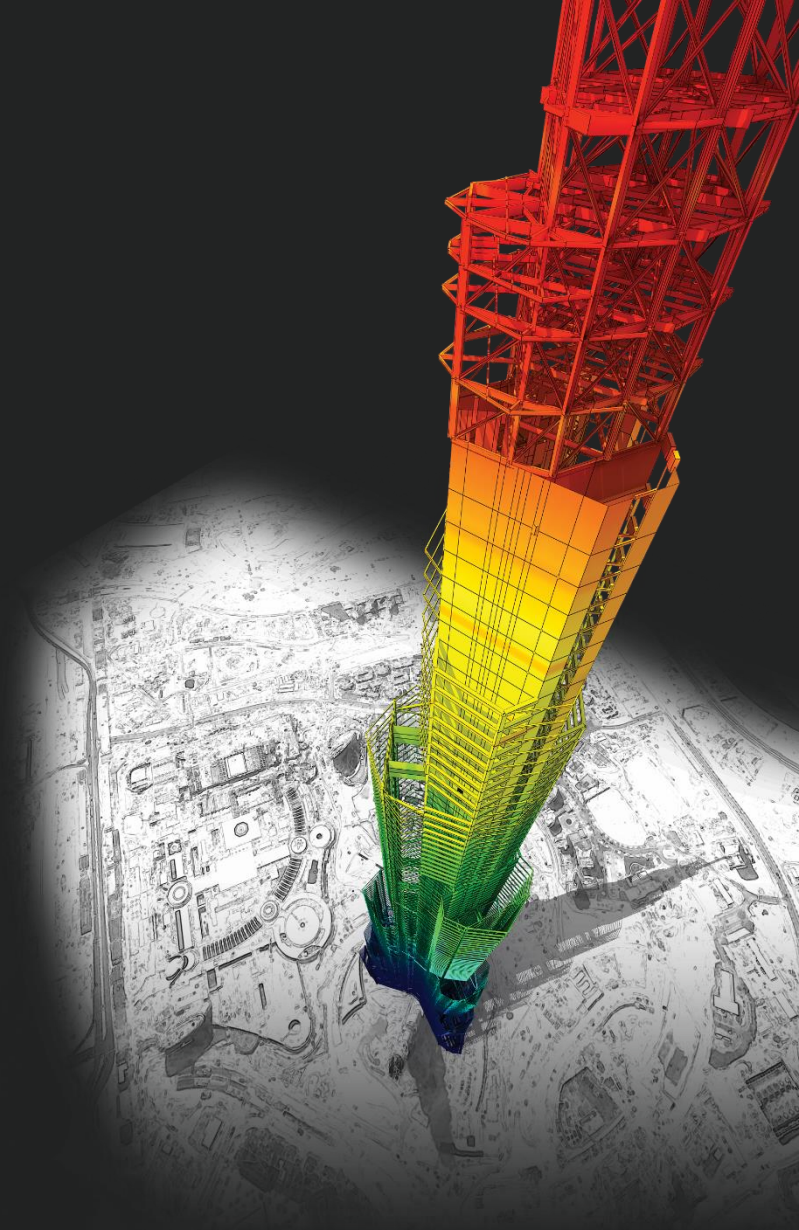
LoadCase	Direction	Scale
RX	X-Y	1.198
RY	X-Y	1.178

Operations

Add Modify Delete

圖 57. 輸入總橫力調整係數

Thank You



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