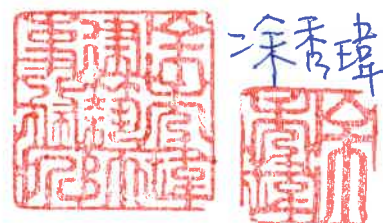


# 新竹縣原住民族地區建築標準圖說 6-SC-2-3

## 結構計算書

Job No. 2208A

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附錄	參考結構圖說
	ETABS 輸入檔
	ETABS 輸出檔
	SAFE 輸入檔
	SAFE 輸出檔



## 建築結構設計基本資料表

### 一、構造種類

- 鋼筋混凝土構造
- 鋼骨構造
- 鋼骨鋼筋混凝土構造
- 其他

### 二、結構系統之規劃及分析

- 韌性抗彎矩構架系統
- 二元系統
- 其他  
具對角斜撐之輕型構架

### 三、結構材料

1. 混凝土  
 $f_c' = 280 \text{ kgf/cm}^2$
2. 鋼筋  
#4(D13)以上： $f_y = 4200 \text{ kgf/cm}^2$   
(CNS 560 A2006 SD420W)  
#3(D10)以下： $f_y = 2800 \text{ kgf/cm}^2$   
(CNS 560 A2006 SD280W)
3. 鋼結構  
SGC440  $3400 \text{ kgf/cm}^2$

### 活載重

LL		kgf/m <sup>2</sup>
1F	住宅	200
2F	住宅	200
PRF	屋頂	60

### 四、水平側向力、風力檢核分析

#### (一) 地震力

1. 新竹縣五峰鄉
2.  $S_S^D = 0.7$  ,  $S_1^D = 0.4$   
 $S_S^M = 0.9$  ,  $S_1^M = 0.5$
3.  $I = 1.10$
4.  $R_x = 3$  ,  $R_y = 3$
5.  $\alpha_y = 1.0$
6. 建築物基本震動週期  $T_x = 0.05 h_n^{3/4}$   
 $T_y = 0.05 h_n^{3/4}$
7.  $V_x / W = 0.299$   
 $V_y / W = 0.292$

#### (二) 風力

基本設計風速每秒 32.5 公尺區

$I = 1.1$  , 地況: **B**

### 五、層間最大變位與層間變位角

(X-Dir.)

1. 最大層間變位角 = 0.382‰
2. 最大位移 = 0.223cm

(Y-Dir.)

1. 最大層間變位角 = 0.203‰
2. 最大位移 = 0.129cm

### 七、結構設計

- ASD
- USD
- LRFD

### 八、基礎設計

- 獨立基腳或聯合基腳
- 筏式基礎
- 樁基礎
- 其他  
版式基礎



九、基礎開挖擋土支保措施

- 斜坡明挖
- 預壘排樁
- 地下連續壁
- 其他



## 1.0 建築概要

本案為標準圖說，工程可能位於新竹縣五峰鄉/尖石鄉/關西鎮，為地上 2 樓之輕型鋼構造，樓高約 7.334 公尺。

建築基地：新竹縣五峰鄉/尖石鄉/關西鎮

建築規模：地上 2 層

開挖深度：0.4m



## 2.0 結構系統說明

地震力分析：法規靜力分析

基本資料：

建築種類：鋼筋混凝土構造(RC)\鋼骨構造(SS)

結構系統：其他\具對角斜撐之輕型構架

樓層概述：

樓層	高度(cm)	用途
1F	320	住宅
2F	413.4	住宅

樓版厚度：

基礎版                      40cm RC 版

PRF                              彩浪鋼版

開挖方式：

斜坡明挖

分析程式： ETABS V9.5



### 3.0 結構材料

#### 3.1 混凝土

##### 材料特性:

波松比	0.2
彈性模數(楊式係數)	$15000 \sqrt{fc'}$ kgf/cm <sup>2</sup>
線性熱膨脹係數	$1.2 \times 10^{-5}$ 1/ °C
混凝土規定抗壓強度 $fc'$	同建築結構設計基本資料表
單位重	2400 kgf/m <sup>3</sup>

#### 3.2 鋼筋

彈性模數(楊式係數)	$2.04 \times 10^6$ kgf/cm <sup>2</sup>
鋼筋規定降伏強度 $fy$	同建築結構設計基本資料表
點焊鋼線網	ASTM A706, $Fy=5000$ kgf/cm <sup>2</sup>

#### 3.3 結構鋼

##### 材料特性:

波松比	0.3
彈性模數(楊式係數)	$2.04 \times 10^6$ kgf/cm <sup>2</sup>
線性熱膨脹係數	$1.2 \times 10^{-5}$ 1/ °C
標稱降伏應力 $fy$	同建築結構設計基本資料表
單位重	7850 kgf/m <sup>3</sup>

##### 螺栓及焊材

高拉力螺栓	F10T
錨定螺栓	ASTM A307, ASTM A325
焊材	E80xx



## 4.0 設計載重

### 4.1 靜載重及活載重

#### 靜載重

##### PRF

載重種類	數量	單位重	總重
設備管線	1 式	40 kgf/m <sup>2</sup>	40 kgf/m <sup>2</sup>

外加靜載重(SDL) 40 kgf/m<sup>2</sup>

##### 2F 室內

載重種類	數量	單位重	總重
鋪面裝修	1 式	40 kgf/m <sup>2</sup>	40 kgf/m <sup>2</sup>

外加靜載重(SDL) 40 kgf/m<sup>2</sup>

#### 活載重 (kgf/m<sup>2</sup>)

#### 同建築結構設計基本資料表

#### 樓層載重資料

樓層	面積(m <sup>2</sup> )	重量(tf)	單位重(tf/m <sup>2</sup> )
PRF	79.44	4.34	0.055
2F	79.44	10.34	0.130





## 4.2 設計地震力及分析結果

依據「建築物耐震設計規範及解說，內政部」，設計地震力為：

$$V = \frac{I}{1.4\alpha_y} \left( \frac{S_{aD}}{F_u} \right)_m W$$

式中

$$\left( \frac{S_{aD}}{F_u} \right)_m = \begin{cases} \frac{S_{aD}}{F_u} & \frac{S_{aD}}{F_u} \leq 0.3 \\ 0.52 \frac{S_{aD}}{F_u} + 0.144 & 0.3 < \frac{S_{aD}}{F_u} < 0.8 \\ 0.70 \frac{S_{aD}}{F_u} & \frac{S_{aD}}{F_u} \geq 0.8 \end{cases}$$

$S_{aD}$  工址設計水平譜加速度係數，為工址水平加速度與重力加速度  $g$  之比值。

$W$  建築物全部靜載重。活動隔間應計入  $75\text{kg/m}^2$  之重量；一般倉庫、書庫應計入至少四分之一活載重；水箱、水池等容器，應計入全部內容物之重量。

$I$  用途係數。

$\alpha_y$  起始降伏地震力放大倍數，依耐震設計規範第一章第 9 節規定，鋼結構採容許應力法設計可取 1.2，採極限設計法取 1.0。就鋼筋混凝土結構而言，以極限強度設計法可採 1.0。

$F_u$  結構系統地震力折減係數，依耐震設計規範第二章第 9 節規定。

※本案為一般建築物，由於本案為泛用之標準圖說，設立之位置較廣，考量其變異性用途係數保守採用 1.1。

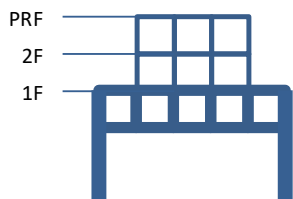


地震力計算詳下表

基地基本資料					斷層資料	
縣市	鄉鎮市區	里	震區種類	地盤種類	附近斷層	距離斷層
新竹縣	五峰鄉	所有里	一般震區	第一類地盤(自行決定地盤種類)	獅潭與神卓山(一般情況)	10(km)

譜加速度係數		近斷層因子		工址放大因子		修正譜加速度係數		分界週期	
$S_S^D$	0.7	設計	$N_a$	1	$F_a$	1	$S_{DS}=F_a \times N_a \times S_S^D$	0.7	$T_0^D=S_{D1}/S_{DS}$
$S_1^D$	0.4		$N_v$	1	$F_v$	1	$S_{D1}=F_v \times N_v \times S_1^D$	0.4	0.571
$S_S^M$	0.9	最大	$N_a$	1	$F_a$	1	$S_{MS}=F_a \times N_a \times S_S^M$	0.9	$T_0^M=S_{M1}/S_{MS}$
$S_1^M$	0.5		$N_v$	1	$F_v$	1	$S_{M1}=F_v \times N_v \times S_1^M$	0.5	0.556

建築基本資料							
屋頂層數	樓層數	地下層數	1F抬高	屋頂高度	建築高度	地下高度	$h_n$ (基面至屋頂)
0 F	2 F	0 F	0(m)	0(m)	7.334(m)	0(m)	7.334(m)



	建築結構系統	
	X方向	Y方向
結構阻尼比	0.02	
結構系統	其他構造	其他構造
$T_{code}$ (法規週期)	$0.05 \times h_n^{3/4} = 0.223(s)$	$0.05 \times h_n^{3/4} = 0.223(s)$
$T_{max}$ (上限週期)	$1.4 \times T_{code} = 0.312(s)$	$1.4 \times T_{code} = 0.312(s)$
I(用途係數)	1.1	
設計規範	鋼構(LRFD)	
$\alpha_y$	1	

各方向地震力計算		X方向	Y方向
1. 建築結構系統 相關資料	$T_{dyna}$ (動力週期)	0.113(s)	0.094(s)
	$T_{design}$ (設計週期)	0.113(s)	0.094(s)
	R(結構系統韌性容量)	3	3
	$R_a$ (結構系統容許韌性容量)	2.333	2.333



各方向地震力計算		X方向	Y方向
2. 最小設計水平總橫力	$S_{aD}$ (工址設計水平譜加速度)	0.867	0.768
	$F_u$ (系統折減係數)	1.903	1.751
	$(S_{aD}/F_u)_m$	0.381	0.372
	$V$ (最小設計水平總橫力)	0.299	0.292
3. 避免最大考量地震崩塌之設計地震力	$S_{aM}$ (工址最大水平譜加速度)	0.900	0.816
	$F_{uM}$ (系統最大折減係數)	2.236	2.044
	$(S_{aM}/F_{uM})_m$	0.353	0.352
	$V_M$ (最大考量地震水平總橫力)	0.278	0.276
4. 避免中小度地震降伏之設計地震力	$V^*$ (中小度地震水平總橫力)	0.190	0.171
5. 層間相對位移地震力	$V_{drift}$ (層間相對位移地震力)	0.173	0.155

各方向地震力計算		Z方向
6. 垂直地震力	$D_{DL+SDL}$ (垂直自重變位)	0.008(cm)
	$T_{ver}$ (垂直週期) $=2\pi(D_{DL+SDL}/g)^{0.5}$	0.018(s)
	$S_{aD,v}$ (垂直設計譜加速度係數)	0.186
	$F_{uv}$ (垂直地震系統折減係數)	1.141
	$(S_{aD,v}/F_{uv})_m$	0.157
	$V_{ZD}$ (垂直設計地震力)	0.123
	$S_{aM,v}$ (垂直最大加速度係數)	0.223
	$F_{uv,M}$ (垂直最大地震系統折減係數)	1.196
	$V_{ZM}$ (避免最大考量垂直地震崩塌)	0.133
	$V_{Z^*}$ (避免中小度垂直地震降伏)	0.047

地震力統整		X方向	Y方向
1. 水平地震力	$V_{design} = \max(V, V_M, V^*)$	0.299	0.292
2. 層間位移地震力	$V_{drift}$	0.173	0.155
地震力統整		Z方向	
3. 垂直地震力	$V_{z,Design} = \max(V_{ZD}, V_{ZM}, V_{Z^*})$	0.133	



**意外扭矩放大係數**

Floor	Load Case	$\delta_{max}$ (cm)	$\delta_{avg}$ (cm)	$A_x=(\delta_{max}/1.2 \delta_{avg})^2$	備註
PRF	EXP	0.223(節點 150)	0.143	1.678	X 最大值
PRF	EYP	0.103(節點 147)	0.098	0.771	
PRF	EXN	0.218(節點 150)	0.144	1.599	
PRF	EYN	0.113(節點 1)	0.099	0.914	
2F	EXP	0.084(節點 161)	0.074	0.898	
2F	EYP	0.076(節點 170)	0.055	1.325	Y 最大值
2F	EXN	0.082(節點 161)	0.074	0.865	
2F	EYN	0.071(節點 170)	0.056	1.132	

X 向最大意外扭矩放大係數  $A_x=1.678$ (PRF-EXP)，故質心偏移比例取  $Ecc=0.05$

\* $1.678=0.084$  進行分析

Y 向最大意外扭矩放大係數  $A_x=1.325$ (2F-EYP)，故質心偏移比例取  $Ecc=0.05$

\* $1.325=0.066$  進行分析



**樓層地震力**

(單位 tf)

	EXP	EXP	EYP	EYP	EXN	EXN	EYN	EYN
	VX	VY	VX	VY	VX	VY	VX	VY
PRF	-2.16	0.00	0.00	-2.16	-2.16	0.00	0.00	-2.16
2F	-2.24	0.00	0.00	-2.24	-2.24	0.00	0.00	-2.24
SUM	-4.40	0.00	0.00	-4.40	-4.40	0.00	0.00	-4.40

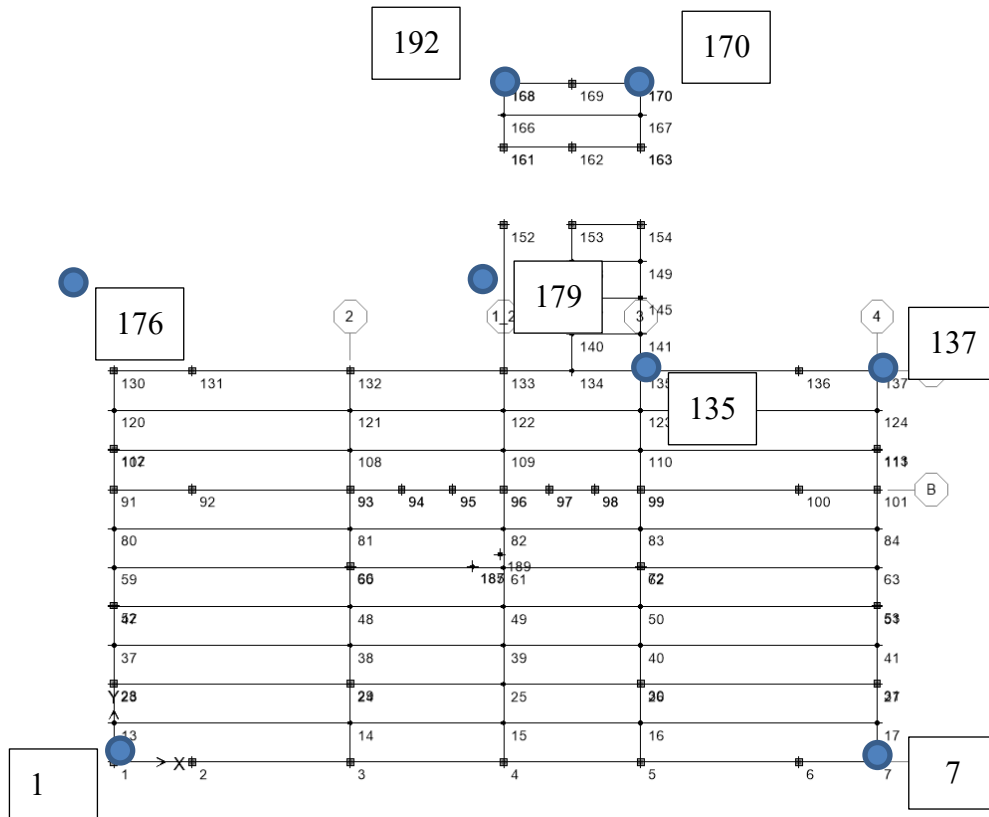
**樓層層間變位角**

	U <sub>x</sub>		U <sub>y</sub>	
	EXP	EXN	EYP	EYN
PRF	0.380‰(C42-1)	0.382‰(C42-1)	0.201‰(C46-1)	0.203‰(C46-1)
2F	0.191‰(C40)	0.187‰(C40)	0.126‰(C48)	0.118‰(C48)



**碰撞距離檢討**

依建築物耐震設計規範，為避免地震時所引起的變形造成鄰棟建築物間的相互碰撞，建築物應自留設設計地震力作用下產生位移乘以  $0.6 \times 1.4 \times \alpha_y \times R_a$  倍之距離。



	節點 1		節點 7		節點 137		節點 135	
	X 向	Y 向	X 向	Y 向	X 向	Y 向	X 向	Y 向
475 年地震 側向位移 (cm)	0.142	0.113	0.142	0.103	0.141	0.103	0.141	0.100
安全 碰撞距離 (cm)	0.279	0.222	0.279	0.202	0.276	0.202	0.276	0.196



	節點 170		節點 168		節點 133		節點 130	
	X 向	Y 向	X 向	Y 向	X 向	Y 向	X 向	Y 向
475 年地震 側向位移 (cm)	0.118	0.101	0.118	0.097	0.141	0.099	0.141	0.113
安全 碰撞距離 (cm)	0.231	0.198	0.231	0.191	0.276	0.194	0.276	0.222

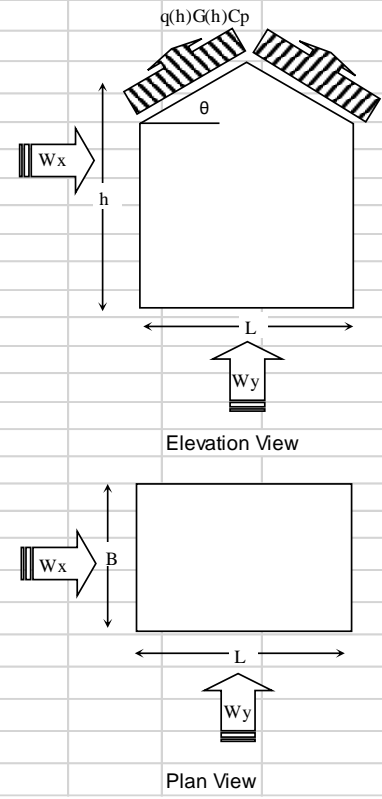
備註：位移放大倍數 X 向為 1.960，Y 向為 1.960



### 4.3 設計風力

依據”建築物耐風設計規範及解說”，本建築基本設計風速為  
每秒 37.5 公尺

封閉式建築主抗風系統屋頂風壓計算							
Enclosed Building Main Wind Force Resistance System Design Roof Pressure(TBC2006)							
Job:				Job No.			
				Made by: JWLI		Date: 2004/12/13	
1.1	Input data			尺寸			
	Exp=	C	V10=	37.5	m/sec	I=	1.1
	Z=	7.334	m	$\theta$ =	17	Degree	
	T=	0.03	sec	Beta=	0.02	B=	20
						L=	30
2.1	Basic Constant						
	Exposure=	C	$\alpha$ =	0.15	Zg=	300.00	m
	Design wind speed=	37.50	m/sec	Building width=	20.00	Ave. roof height=	7.33
	Do=	0.005	Damping ratio=	0.020			
2.2	Wind pressure						
	$K(h)=2.774(Z/Zg)^{2\alpha}$	$h>5m$	Average level	=	0.9111		
	$K(h)=2.774(5/Zg)^{2\alpha}$	$h<5m$		=	0.0000		
	$q(h)=0.0625*K(z)*(IV_{10}(C))^2$			=	96.89	kg/m <sup>2</sup>	
2.3	Roof design wind pressure						
	Direction	Width	Length	G(h)	Wind ward	Leeward	
					Cp	q(h)G(h)Cp	Cp
							q(h)G(h)Cp
	Wx	20	30	1.859	-0.46	-83	-0.7
	Wy	30	20	1.839	-0.70	-125	-0.7
2.4	Positive pressure under ROOF OVERHANG for main wind force resistance system						
	Direction	G(h)	Wind ward		Leeward		
			Cp	q(h)G(h)Cp	Cp	q(h)G(h)Cp	
	Wx	1.859	0.8	144	0.5	90	234
	Wy	1.839	0.8	143	0.5	89	232



	WX	WX	WY	WY
	VX	VY	VX	VY
PRF	-5.53	0.00	0.00	-6.05
2F	-9.82	0.00	0.00	-10.73
SUM	-15.35	0.00	0.00	-16.78

X 向設計風力為 15.35tf，大於 X 向設計地震力 4.4tf  
Y 向設計風力為 16.78tf，大於 Y 向設計地震力 4.4tf





#### 4.4 載重組合

DL=Dead load (include member self weight)

LL=Live load

EXP,EXN=Code static seismic load x-direction ( $\pm 0.05$  offset)

EYP,EYN=Code static seismic load y-direction ( $\pm 0.05$  offset)

Ez=Code static vertical seismic load

$E_x = EXP \cdot EXN$

$E_y = EYP \cdot EYN$

W=Wind load

#### 設計

1.4DL

1.2DL+1.6LL

1.2DL+1.0LL $\pm$ 1.0E<sub>x</sub> $\pm$ 0.3E<sub>z</sub>

1.2DL+1.0LL $\pm$ 1.0E<sub>y</sub> $\pm$ 0.3E<sub>z</sub>

1.2DL+1.0LL $\pm$ 1.0E<sub>z</sub> $\pm$ 0.3E<sub>x</sub>

1.2DL+1.0LL $\pm$ 1.0E<sub>z</sub> $\pm$ 0.3E<sub>y</sub>

0.9DL $\pm$ 1.0E<sub>x</sub> $\pm$ 0.3E<sub>z</sub>

0.9DL $\pm$ 1.0E<sub>y</sub> $\pm$ 0.3E<sub>z</sub>

0.9DL $\pm$ 1.0E<sub>z</sub> $\pm$ 0.3E<sub>x</sub>

0.9DL $\pm$ 1.0E<sub>z</sub> $\pm$ 0.3E<sub>y</sub>

1.2DL+1.0LL $\pm$ 1.6W

0.9DL $\pm$ 1.6W



	DL	SDL	LL	EXP	EYP	EXN	EYN	EZ	WX	WY
02RC01	1.400	1.400								
02RC02	1.200	1.200	1.600							
02RC03	1.200	1.200	1.000	1.000				0.300		
02RC04	1.200	1.200	1.000	1.000				-0.300		
02RC05	1.200	1.200	1.000		1.000			0.300		
02RC06	1.200	1.200	1.000		1.000			-0.300		
02RC07	1.200	1.200	1.000			1.000		0.300		
02RC08	1.200	1.200	1.000			1.000		-0.300		
02RC09	1.200	1.200	1.000				1.000	0.300		
02RC10	1.200	1.200	1.000				1.000	-0.300		
02RC11	1.200	1.200	1.000	-1.000				0.300		
02RC12	1.200	1.200	1.000	-1.000				-0.300		
02RC13	1.200	1.200	1.000		-1.000			0.300		
02RC14	1.200	1.200	1.000		-1.000			-0.300		
02RC15	1.200	1.200	1.000			-1.000		0.300		
02RC16	1.200	1.200	1.000			-1.000		-0.300		
02RC17	1.200	1.200	1.000				-1.000	0.300		
02RC18	1.200	1.200	1.000				-1.000	-0.300		
02RC19	1.200	1.200	1.000	0.300				1.000		
02RC20	1.200	1.200	1.000	0.300				-1.000		
02RC21	1.200	1.200	1.000		0.300			1.000		
02RC22	1.200	1.200	1.000		0.300			-1.000		
02RC23	1.200	1.200	1.000			0.300		1.000		
02RC24	1.200	1.200	1.000			0.300		-1.000		
02RC25	1.200	1.200	1.000				0.300	1.000		
02RC26	1.200	1.200	1.000				0.300	-1.000		
02RC27	1.200	1.200	1.000	-0.300				1.000		
02RC28	1.200	1.200	1.000	-0.300				-1.000		
02RC29	1.200	1.200	1.000		-0.300			1.000		
02RC30	1.200	1.200	1.000		-0.300			-1.000		
02RC31	1.200	1.200	1.000			-0.300		1.000		
02RC32	1.200	1.200	1.000			-0.300		-1.000		
02RC33	1.200	1.200	1.000				-0.300	1.000		
02RC34	1.200	1.200	1.000				-0.300	-1.000		
02RC35	0.900	0.900		1.000				0.300		
02RC36	0.900	0.900		1.000				-0.300		
02RC37	0.900	0.900			1.000			0.300		
02RC38	0.900	0.900			1.000			-0.300		
02RC39	0.900	0.900				1.000		0.300		
02RC40	0.900	0.900				1.000		-0.300		



02RC41	0.900	0.900					1.000	0.300		
02RC42	0.900	0.900					1.000	-0.300		
02RC43	0.900	0.900		-1.000				0.300		
02RC44	0.900	0.900		-1.000				-0.300		
02RC45	0.900	0.900			-1.000			0.300		
02RC46	0.900	0.900			-1.000			-0.300		
02RC47	0.900	0.900				-1.000		0.300		
02RC48	0.900	0.900				-1.000		-0.300		
02RC49	0.900	0.900					-1.000	0.300		
02RC50	0.900	0.900					-1.000	-0.300		
02RC51	0.900	0.900		0.300				1.000		
02RC52	0.900	0.900		0.300				-1.000		
02RC53	0.900	0.900			0.300			1.000		
02RC54	0.900	0.900			0.300			-1.000		
02RC55	0.900	0.900				0.300		1.000		
02RC56	0.900	0.900				0.300		-1.000		
02RC57	0.900	0.900					0.300	1.000		
02RC58	0.900	0.900					0.300	-1.000		
02RC59	0.900	0.900		-0.300				1.000		
02RC60	0.900	0.900		-0.300				-1.000		
02RC61	0.900	0.900			-0.300			1.000		
02RC62	0.900	0.900			-0.300			-1.000		
02RC63	0.900	0.900				-0.300		1.000		
02RC64	0.900	0.900				-0.300		-1.000		
02RC65	0.900	0.900					-0.300	1.000		
02RC66	0.900	0.900					-0.300	-1.000		
02RC67	1.200	1.200	1.000						1.600	
02RC68	1.200	1.200	1.000							1.600
02RC69	1.200	1.200	1.000						-1.600	
02RC70	1.200	1.200	1.000							-1.600
02RC71	0.900	0.900							1.600	
02RC72	0.900	0.900								1.600
02RC73	0.900	0.900							-1.600	
02RC74	0.900	0.900								-1.600



## 5.0 工作載重結構行為限制

### A. 梁變形限制

靜載重加活載重 L/240

活載重 L/360

### B. 地震力側向變形角限制

最大變形角 5/1000

### C. 結構受風力側向加速度限制

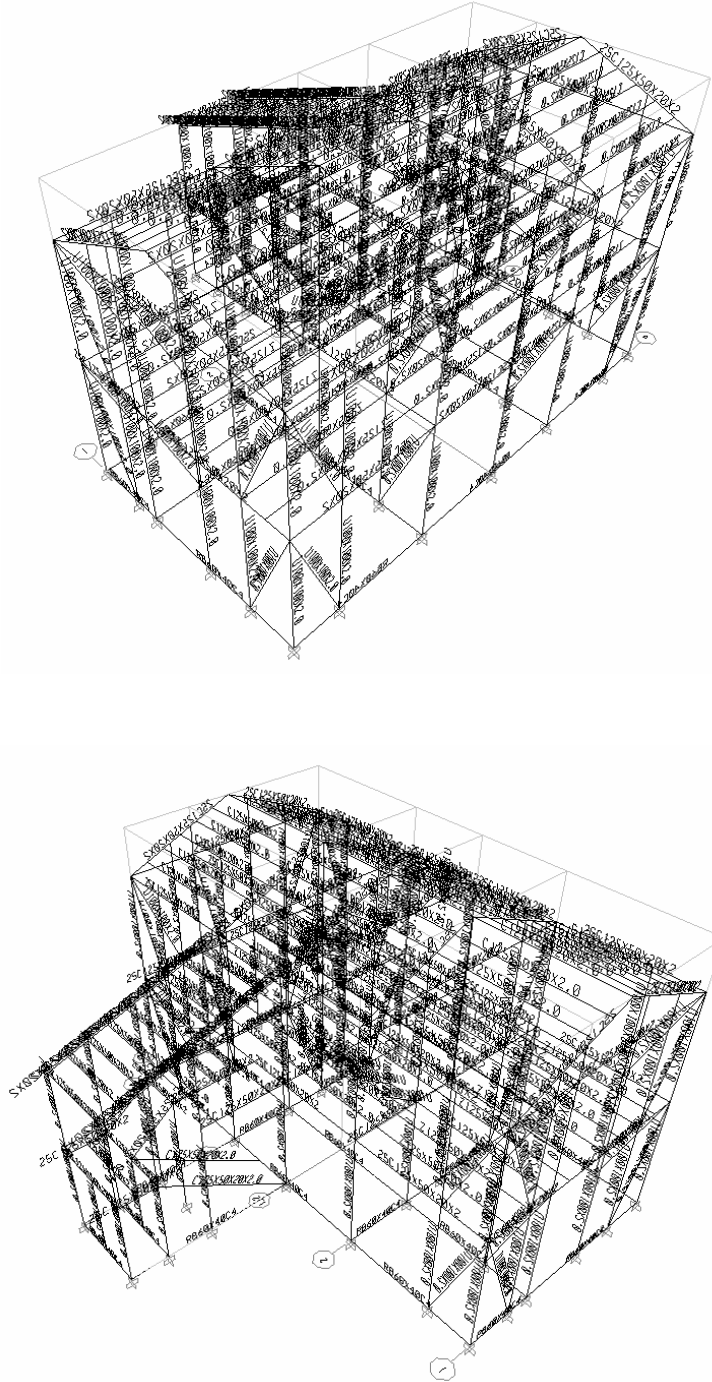
最大加速度 0.005g (0.05 m/sec<sup>2</sup>)

## 6.0 設計規範

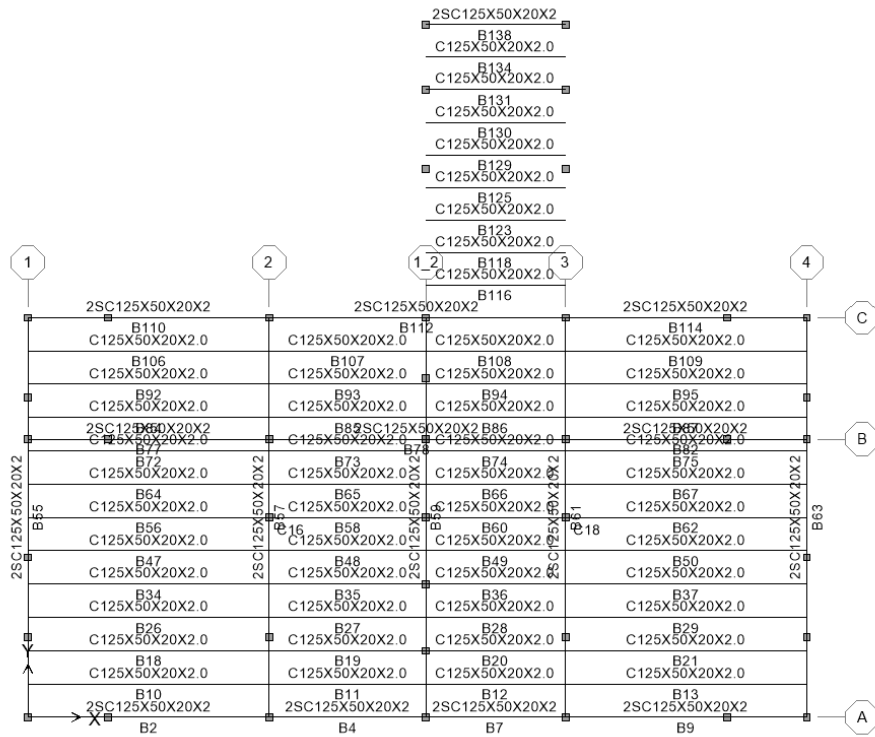
- (1) 建築技術規則, 內政部, 最新版。
- (2) 建築物耐震設計規範及解說, 內政部, 2011/07。
- (3) 建築物基礎構造設計規範, 內政部, 2001/10。
- (4) 混凝土結構設計規範, 內政部, 2011/07。
- (5) 建築物耐風設計規範及解說, 內政部, 2017/01。
- (6) 冷軋型鋼構造建築物結構設計規範及解說, 內政部, 2015/10
- (7) ACI 318-05。

## 7.0 結構分析程序

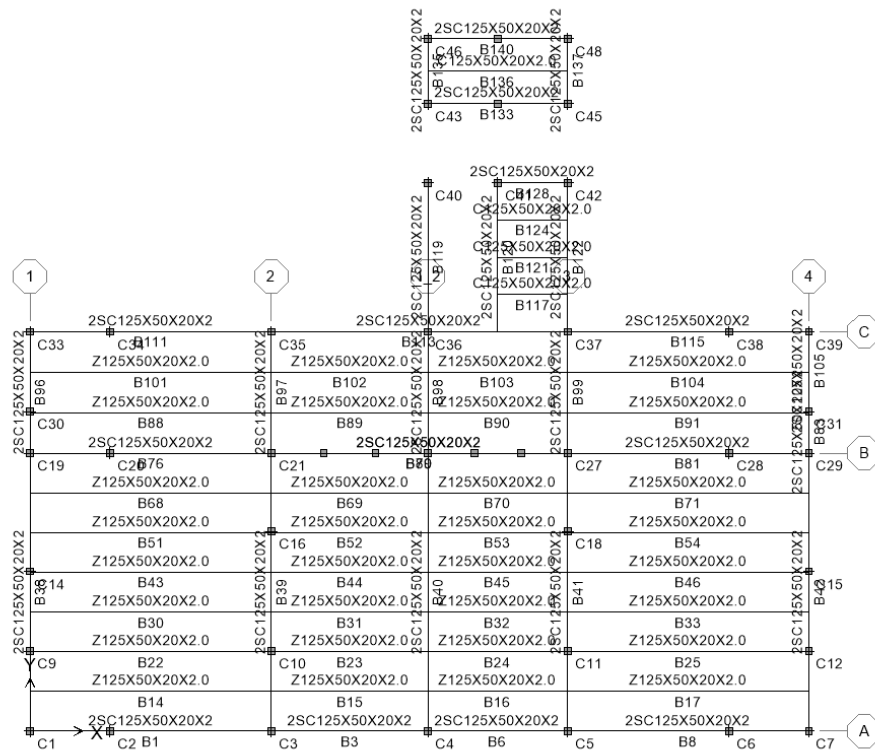
### 7.1 結構模型



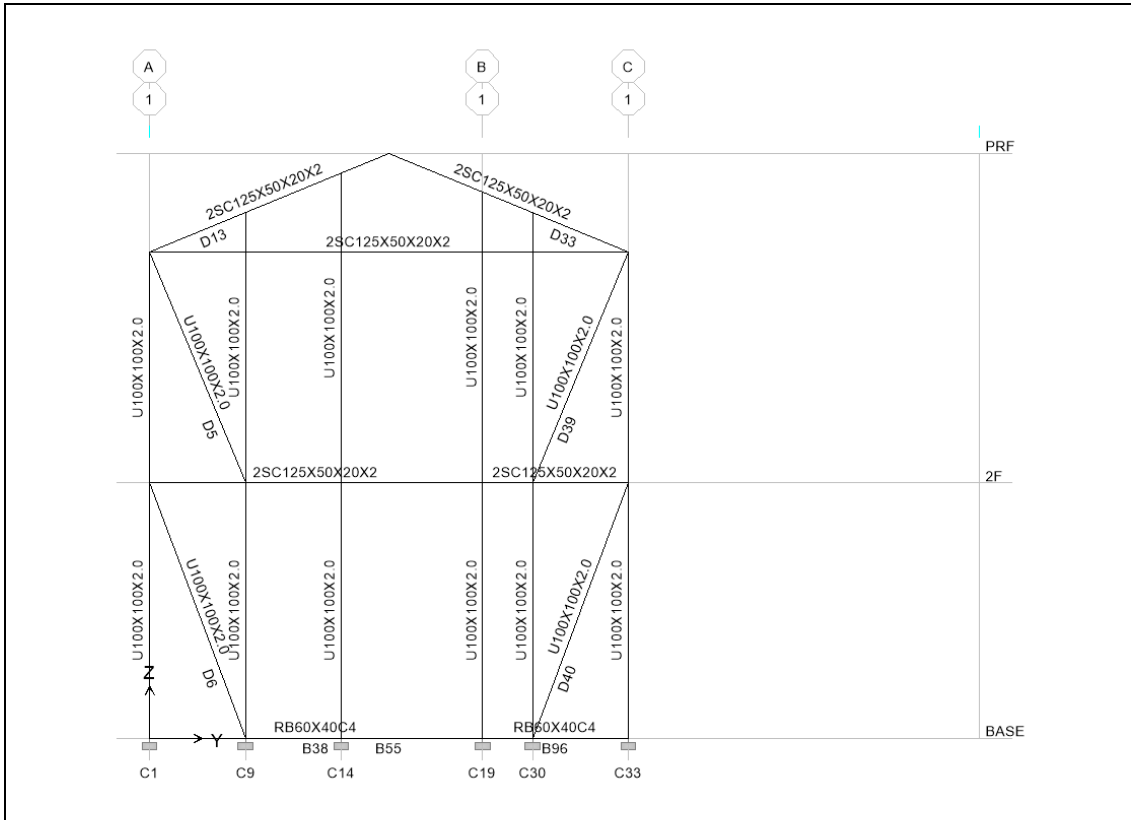
3D view



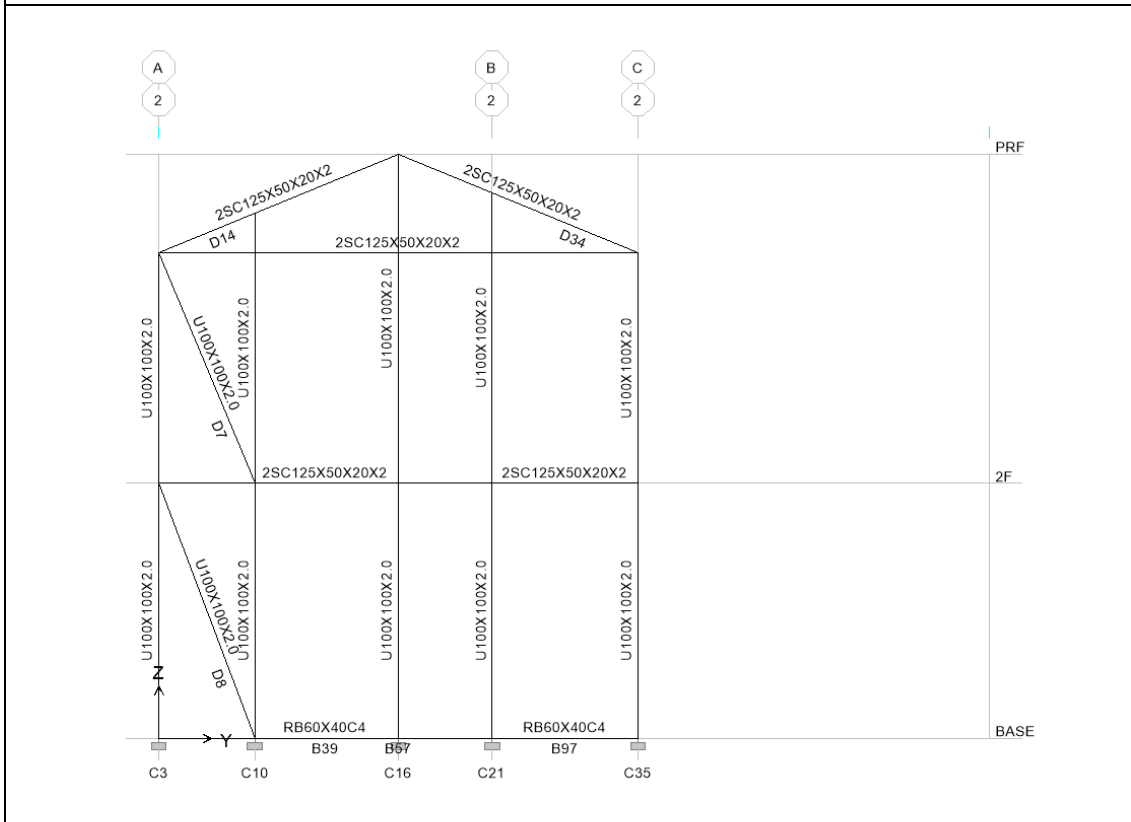
PRF plan



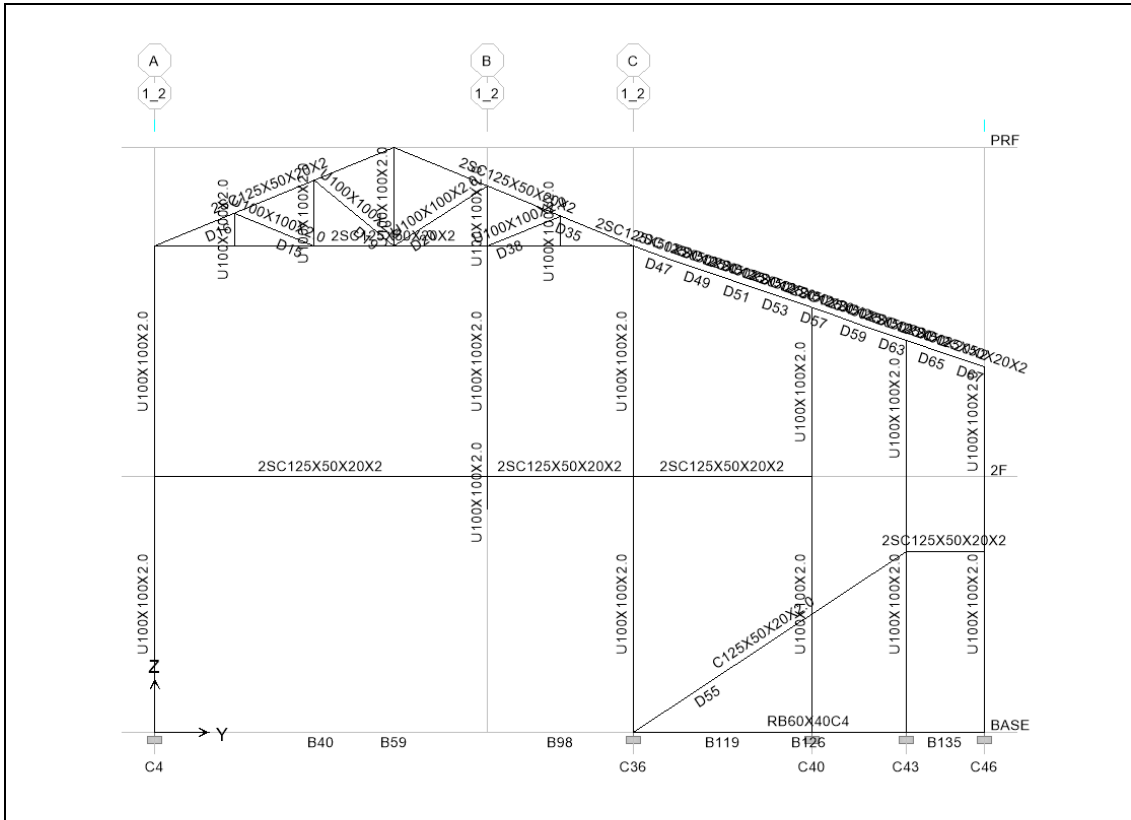
2F plan



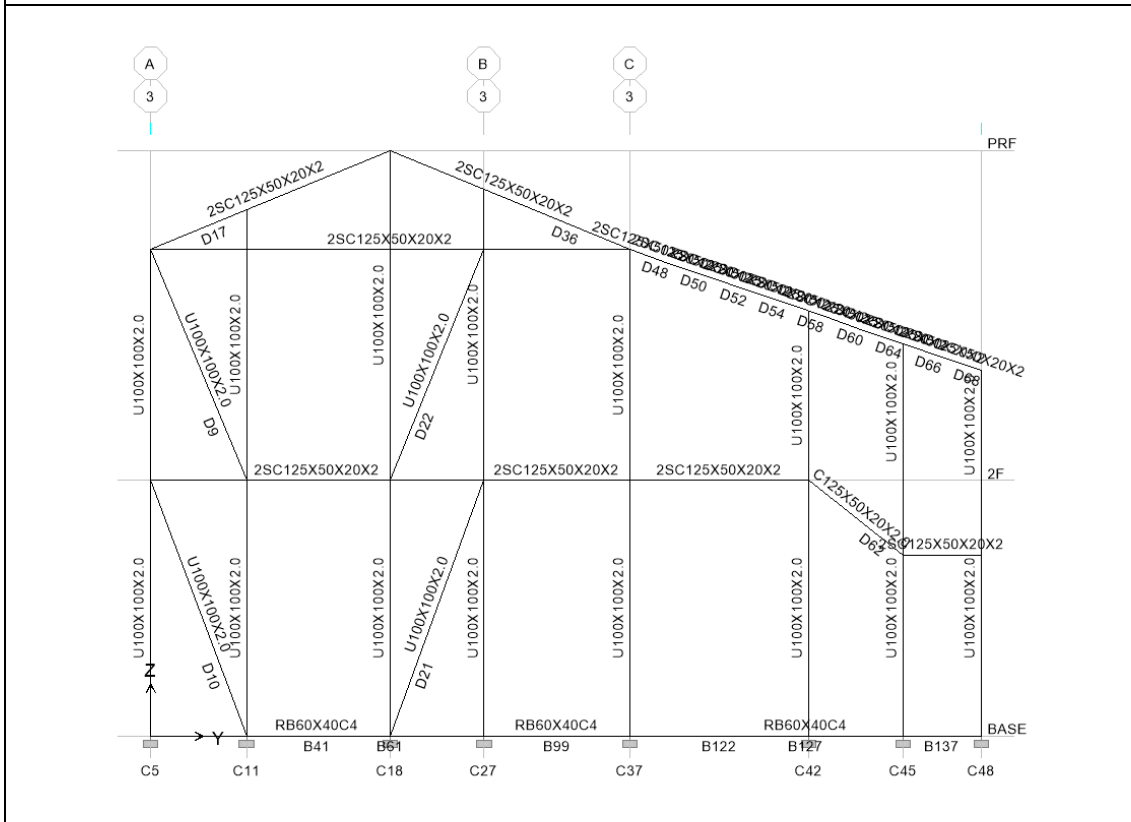
EL Line-1



EL Line-2

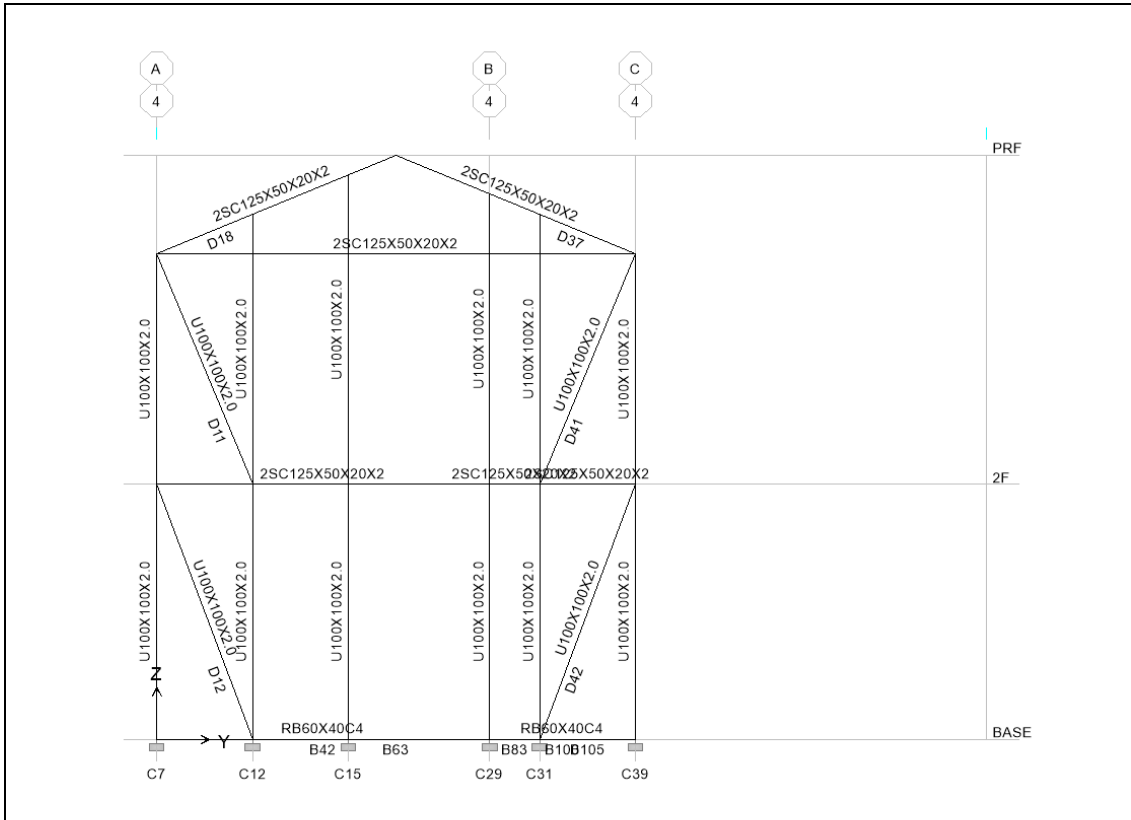


EL Line-1\_2

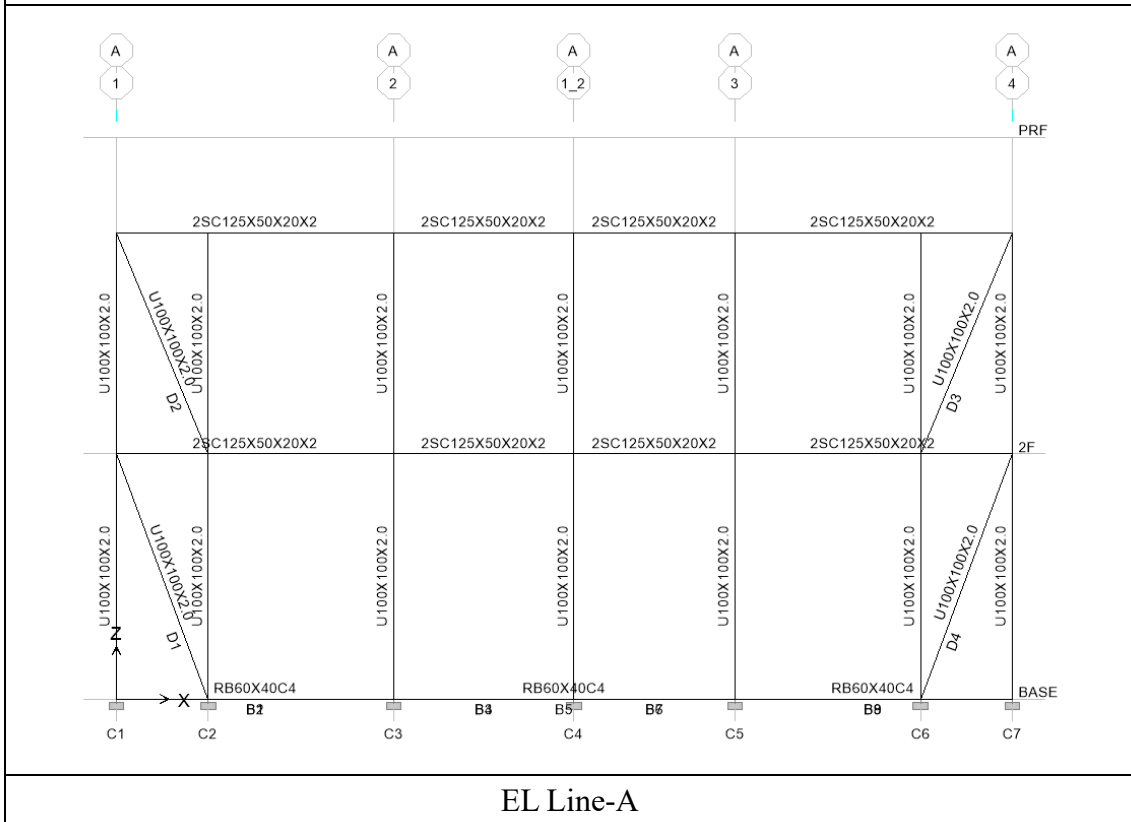


EL Line-3

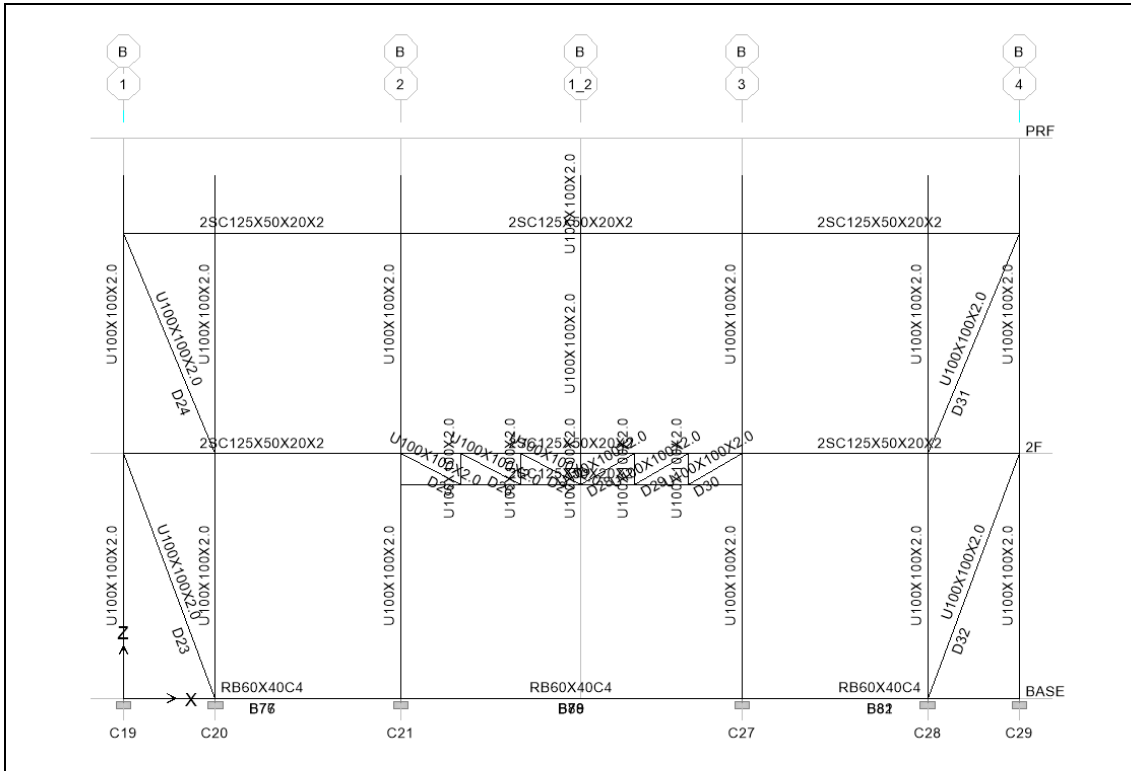




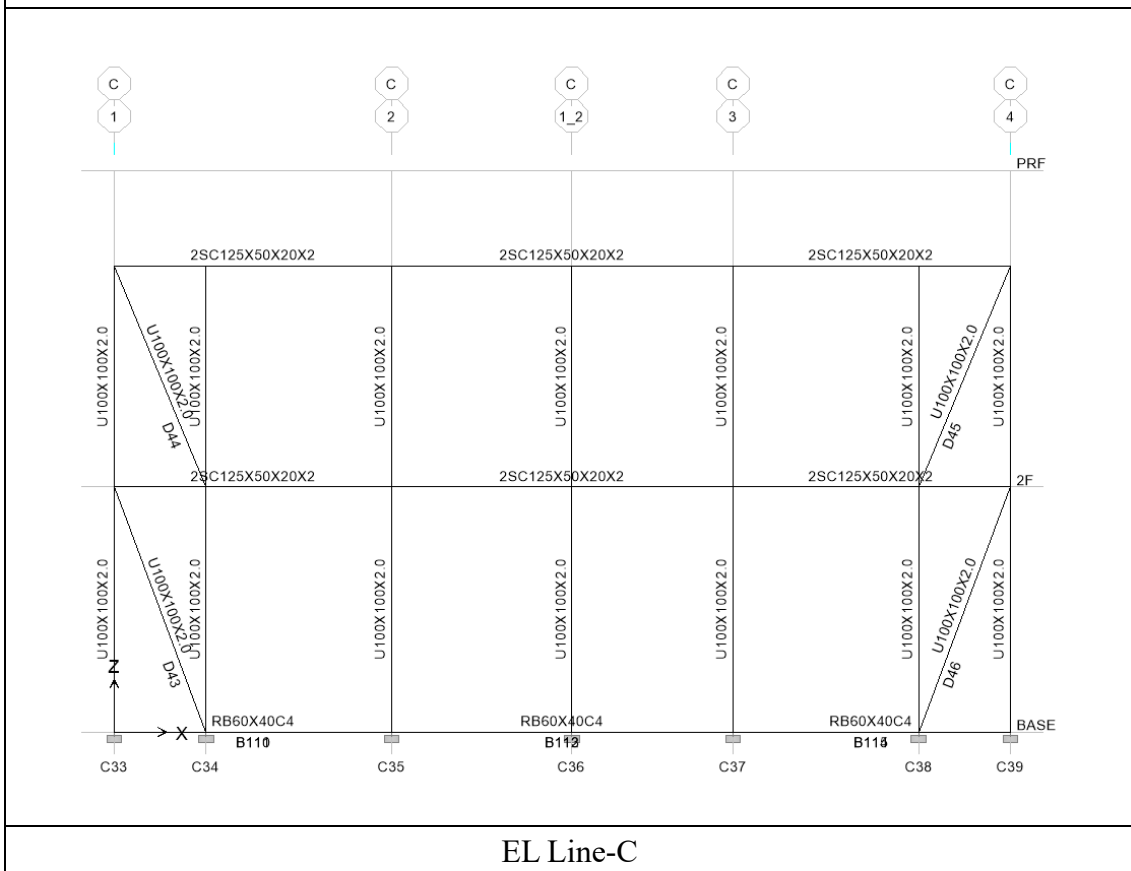
EL Line-4



EL Line-A



EL Line-B

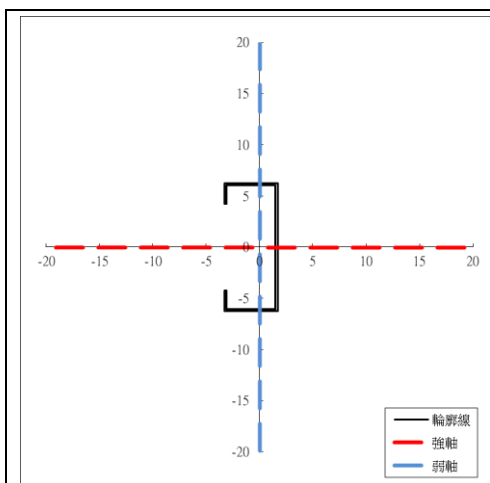


EL Line-C



斷面性質

C125x50x20x2.0



斷面積：  $A= 5.140 \text{ (cm}^2\text{)}$

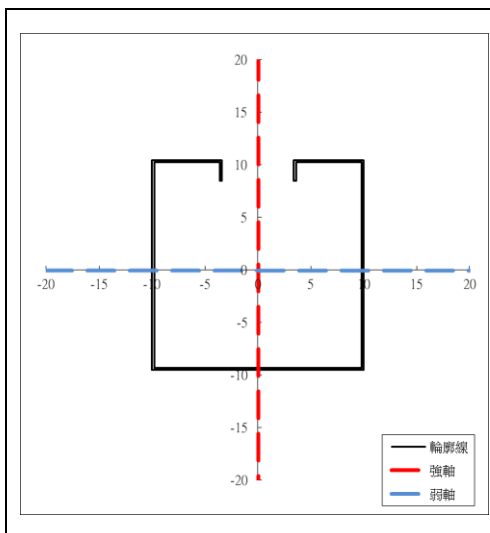
慣性矩：  $I_x= 124.468 \text{ (cm}^4\text{)}$

$I_y= 19.025 \text{ (cm}^4\text{)}$

斷面模數：  $S_x= 19.915 \text{ (cm}^3\text{)}$

$S_y= 5.776 \text{ (cm}^3\text{)}$

U100x100x2.0



斷面積：  $A= 15.200 \text{ (cm}^2\text{)}$

慣性矩：  $I_x= 955.743 \text{ (cm}^4\text{)}$

$I_y= 1038.673 \text{ (cm}^4\text{)}$

斷面模數：  $S_x= 91.334 \text{ (cm}^3\text{)}$

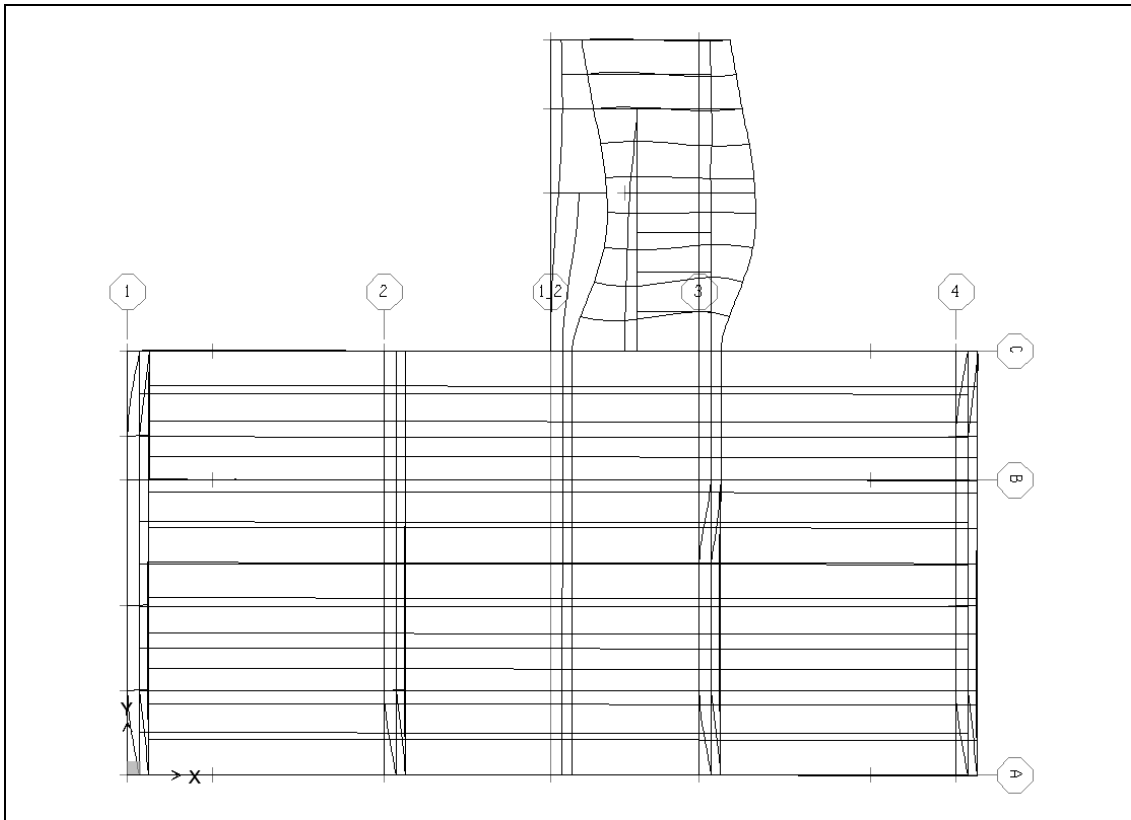
$S_y= 103.867 \text{ (cm}^3\text{)}$



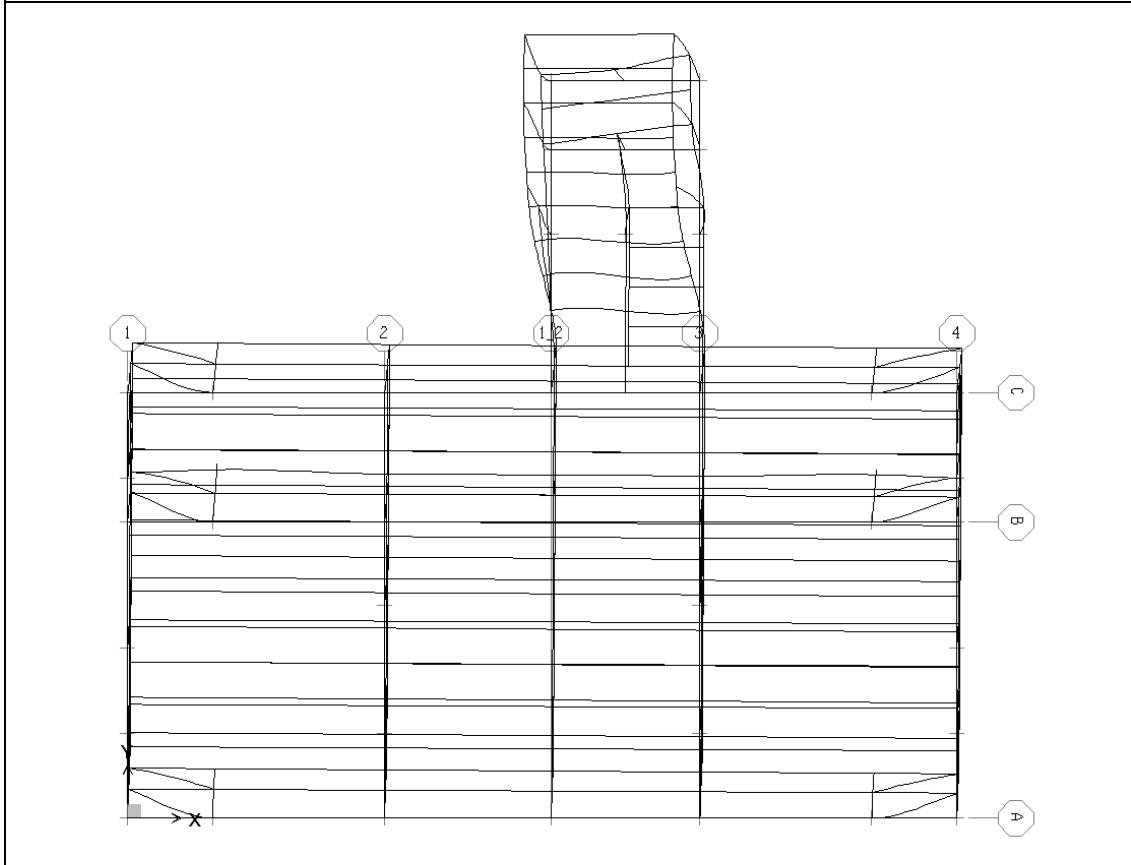
2-C125x50x20x2.0

	<p>彈性係數：</p> $E = 2100000 \quad (\text{kgf/cm}^2)$ <p>斷面積：</p> $A = \frac{\sum E \cdot A}{E} = 10.280 \quad (\text{cm}^2)$ <p>慣性矩：</p> $I_x = \frac{\sum E \cdot I_x}{E} = 248.937 \quad (\text{cm}^4)$ $I_y = \frac{\sum E \cdot I_y}{E} = 38.050 \quad (\text{cm}^4)$ <p>斷面模數：</p> $S_x = \frac{\sum E \cdot I_x}{E_i \cdot y_i} = 39.830 \quad (\text{cm}^3)$ $S_y = \frac{\sum E \cdot I_y}{E_i \cdot x_i} = 11.552 \quad (\text{cm}^3)$
--	--

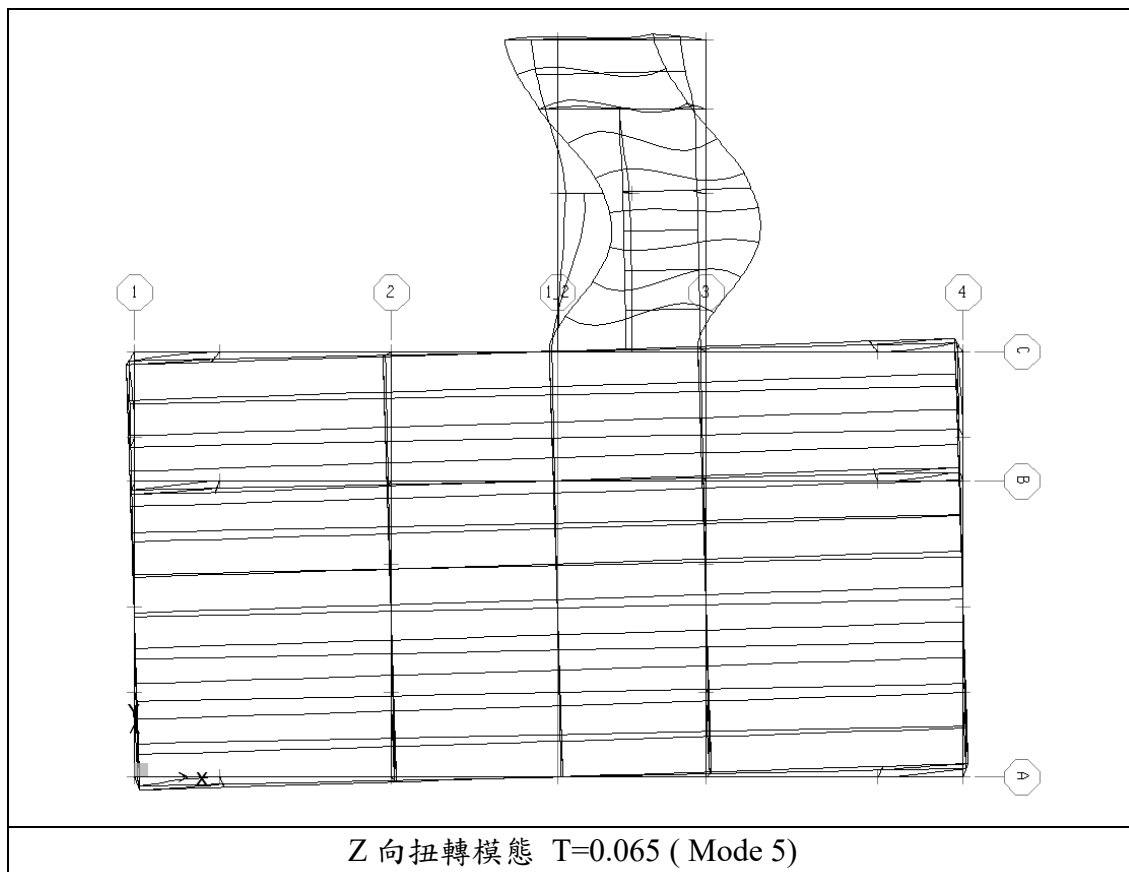
## 7.2 模態分析



X 向位移模態  $T=0.113$  ( Mode 1)



Y 向位移模態  $T=0.094$  ( Mode 3)



有效累積振態質量

Mode	Period	UX	UY	RZ	SumUX	SumUY	SumRZ	Remark
1	0.113	82.109	0.005	0.173	82.109	0.005	0.173	X-Dir
2	0.097	7.336	1.916	20.342	89.445	1.921	20.515	
3	0.094	0.104	90.225	0.000	89.549	92.146	20.515	Y-Dir
4	0.069	0.566	0.328	36.885	90.114	92.474	57.400	
5	0.065	1.972	0.064	38.652	92.086	92.538	96.053	Z-Tor
6	0.043	3.308	0.000	0.019	95.394	92.538	96.072	
7	0.041	4.073	0.001	0.324	99.467	92.540	96.396	
8	0.038	0.010	0.000	0.087	99.477	92.540	96.484	
9	0.036	0.001	6.623	0.000	99.478	99.163	96.484	
10	0.034	0.375	0.004	0.102	99.853	99.166	96.585	
11	0.028	0.051	0.043	3.294	99.904	99.209	99.880	
12	0.025	0.060	0.001	0.043	99.964	99.210	99.922	
13	0.024	0.000	0.692	0.000	99.964	99.902	99.922	
14	0.022	0.000	0.007	0.006	99.964	99.909	99.928	
15	0.022	0.000	0.000	0.000	99.964	99.909	99.928	



## 7.2 鋼結構設計：

根據鋼構造建築物鋼結構設計技術規範，鋼結構極限設計法之相關規定，對稱構材承受彎矩及軸力交互作用時，須滿足公式(8.2-1a)或(8.2-1b)之規定。

當  $\frac{P_u}{\phi P_n} \geq 0.2$  時

$$\frac{P_u}{\phi P_n} + \frac{8}{9} \left[ \frac{M_{ux}}{\phi_b M_{nx}} + \frac{M_{uy}}{\phi_b M_{ny}} \right] \leq 1.0 \quad (8.2-1a)$$

當  $\frac{P_u}{\phi P_n} < 0.2$  時

$$\frac{P_u}{2\phi P_n} + \left[ \frac{M_{ux}}{\phi_b M_{nx}} + \frac{M_{uy}}{\phi_b M_{ny}} \right] \leq 1.0 \quad (8.2-1b)$$

其中

$P_u$  = 所需之軸拉力或軸壓力強度

$P_n$  = 標稱抗拉強度或標稱抗壓強度

$M_u$  = 所需之撓曲強度

$M_n$  = 標稱之撓曲強度

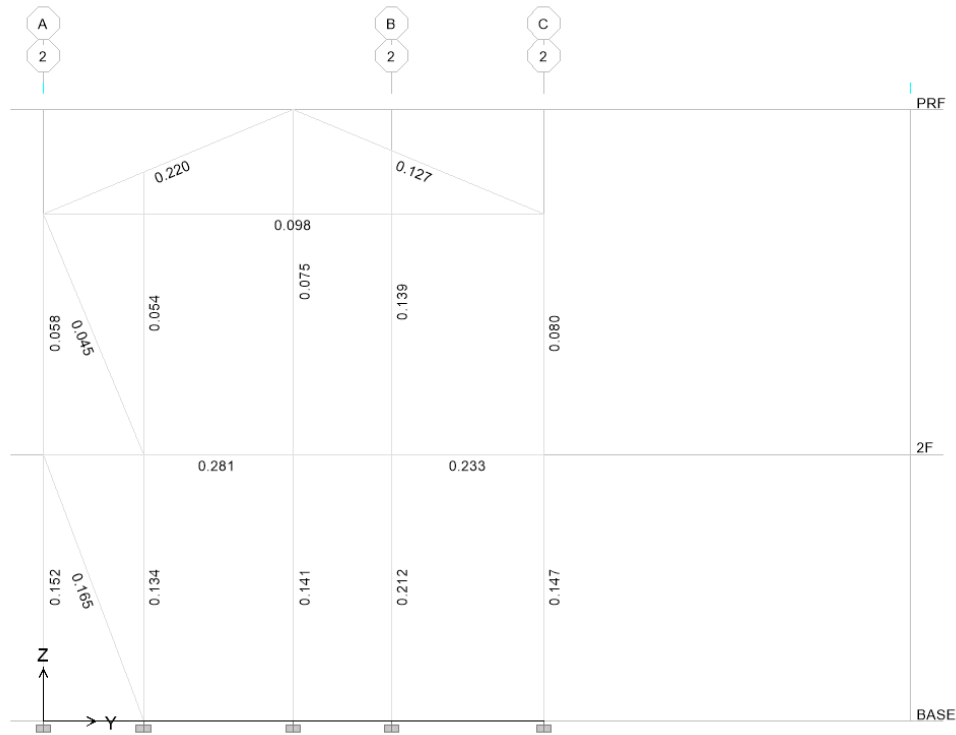
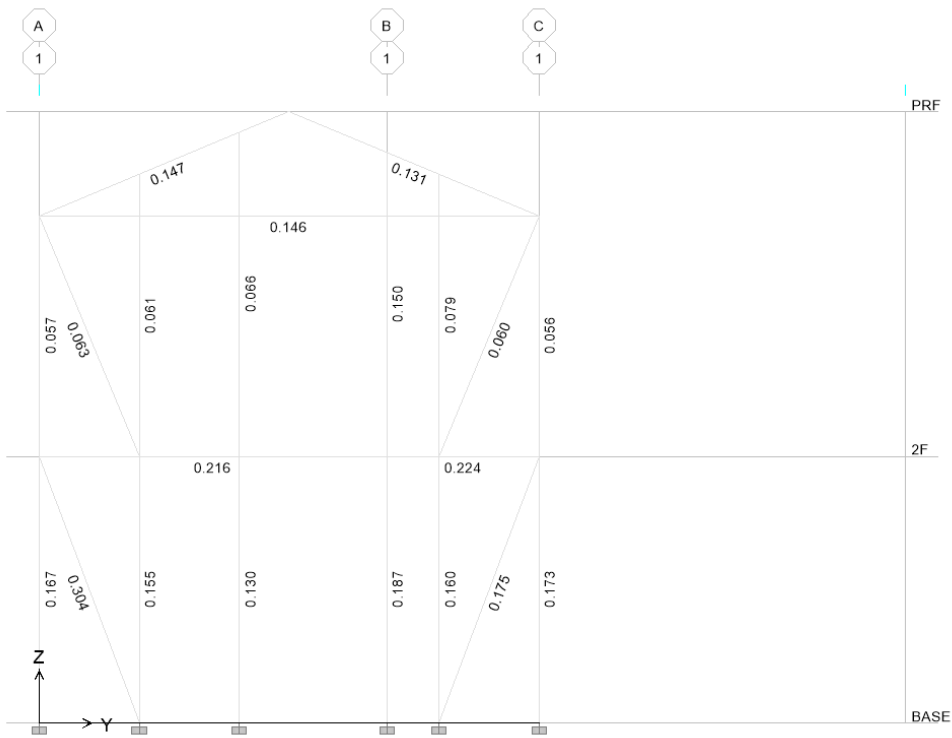
x = 強軸

y = 弱軸

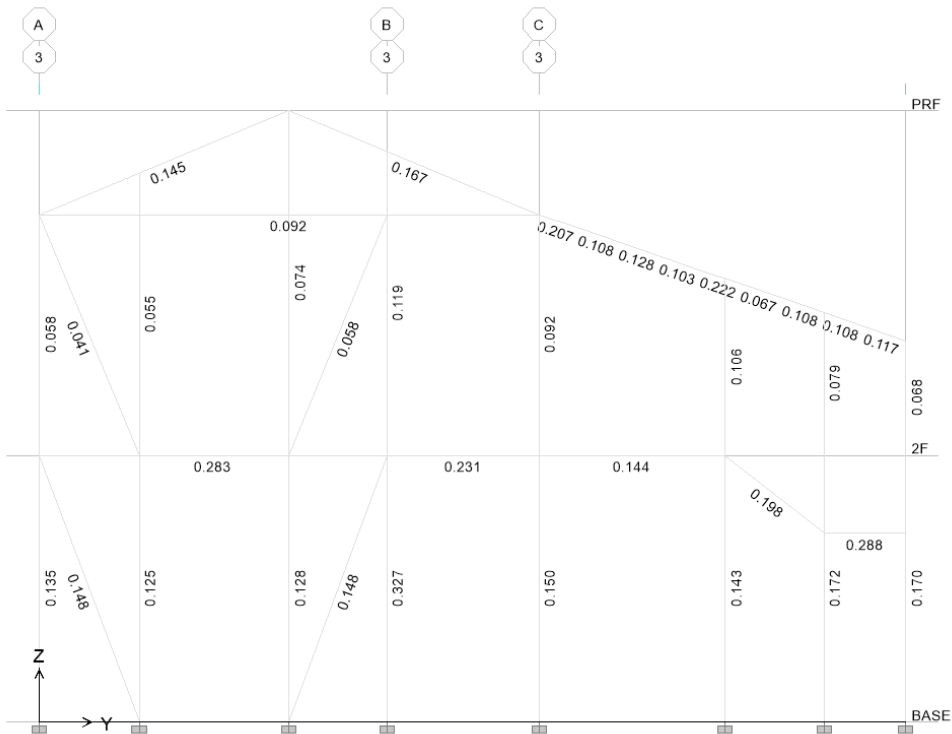
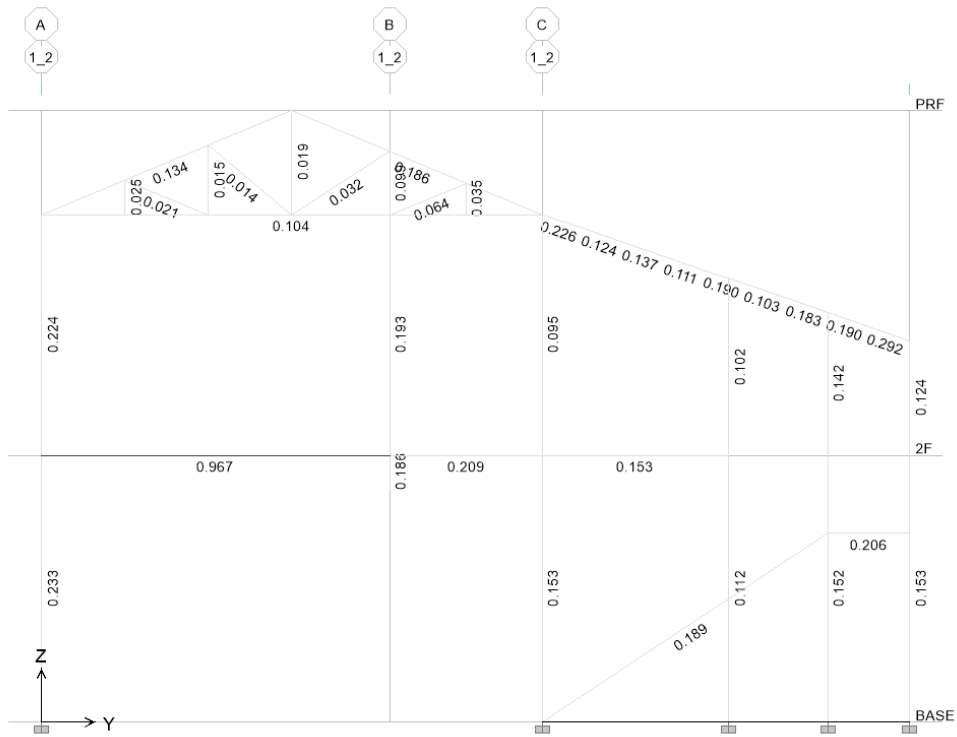
$\phi$  = 軸力載重下之強度折減係數

$\phi_b$  = 撓曲載重下之強度折減係數

分析模型各桿件的應力比皆小於1.....OK!











## 9.0 基礎設計 / Foundation Design

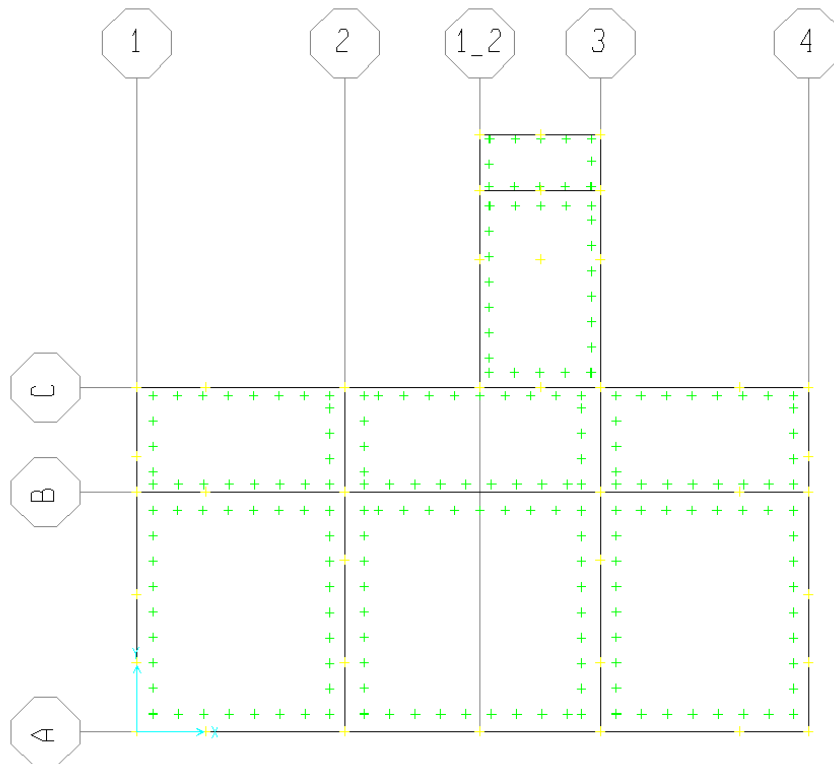
### 9.1 基礎設計說明

本案基礎設計採 CSI 公司之 2-D 分析軟體”SAFE V8.01”，分析元素包含基礎版、及地梁，版元素下方承受地下水壓上舉水浮力，版元素上方則於柱位置處承受結構傳遞之垂直載重，包含靜載重、活載重及地震力等。將基礎為一柔性體，應用土壤彈簧（Soil Spring）之觀念，將土壤模擬成無受拉彈簧，同時合併基礎地梁、版之勁度進行分析並設計。

#### 9.1.1 分析基本資料

依據鄰近地質鑽探報告，各設計數據如下：

地盤垂直反力係數	$K_v = 1000(\text{tf}/\text{m}^3)$
常時水位(WAN)	GL -10m
高水位(WAH)	GL -7m
土壤容許乘載力	$q_a > 10 (\text{tf}/\text{m}^2)$



基礎結構平面圖



### 9.1.2 基礎設計載重組合

地震力分析採用法規靜力地震力，將上部結構桿件力傳至基礎。配筋設計採用設計地震力之  $1.4\alpha y$  倍作為設計載重。分析及配筋設計之載重組合如下：

DL：靜載重(包含自重)

LL：活載重

E：法規地震載重 (EXP、EXN、EYP、EYN)

EXP、EXN：X 向法規靜力地震載重(含正負 5% 質心偏移，P 為正，N 為負)

EYP、EYN：Y 向法規靜力地震載重(含正負 5% 質心偏移，P 為正，N 為負)

WA：水浮力 (WAH、WAN)

WAH：高水位時之水浮力

WAN：常時水位之水浮力

檢核(乘載力檢核)

$$1.0DL+1.0WA$$

$$1.0DL+1.0LL+1.0WA$$

$$1.0DL+1.0LL\pm 1.0E+1.0WA$$

設計

$$1.4DL+1.4WA$$

$$1.2DL+1.6LL+1.2WA$$

$$1.2DL+1.0LL\pm 1.4E$$

$$0.9DL\pm 1.4E$$



	DL	SDL	LL	EXP	EYP	EXN	EYN	WAH	WAN	備註
BASE01	1.000	1.000						1.000		檢核(乘載力檢核)
BASE02	1.000	1.000							1.000	
BASE03	1.000	1.000	1.000					1.000		
BASE04	1.000	1.000	1.000						1.000	
BASE05	1.000	1.000	1.000	1.000				1.000		
BASE06	1.000	1.000	1.000	1.000					1.000	
BASE07	1.000	1.000	1.000		1.000			1.000		
BASE08	1.000	1.000	1.000		1.000				1.000	
BASE09	1.000	1.000	1.000			1.000		1.000		
BASE10	1.000	1.000	1.000			1.000			1.000	
BASE11	1.000	1.000	1.000				1.000	1.000		
BASE12	1.000	1.000	1.000				1.000		1.000	
BASE13	1.000	1.000	1.000	-1.000				1.000		
BASE14	1.000	1.000	1.000	-1.000					1.000	
BASE15	1.000	1.000	1.000		-1.000			1.000		
BASE16	1.000	1.000	1.000		-1.000				1.000	
BASE17	1.000	1.000	1.000			-1.000		1.000		
BASE18	1.000	1.000	1.000			-1.000			1.000	
BASE19	1.000	1.000	1.000				-1.000	1.000		
BASE20	1.000	1.000	1.000				-1.000		1.000	
BASE21	1.400	1.400						1.400		設計
BASE22	1.400	1.400							1.400	
BASE23	1.200	1.200	1.600					1.200		
BASE24	1.200	1.200	1.600						1.200	
BASE25	1.200	1.200	1.000	1.400						
BASE26	1.200	1.200	1.000		1.400					
BASE27	1.200	1.200	1.000			1.400				
BASE28	1.200	1.200	1.000				1.400			
BASE29	1.200	1.200	1.000	-1.400						
BASE30	1.200	1.200	1.000		-1.400					
BASE31	1.200	1.200	1.000			-1.400				
BASE32	1.200	1.200	1.000				-1.400			
BASE33	0.900	0.900		1.400						
BASE34	0.900	0.900			1.400					
BASE35	0.900	0.900				1.400				
BASE36	0.900	0.900					1.400			



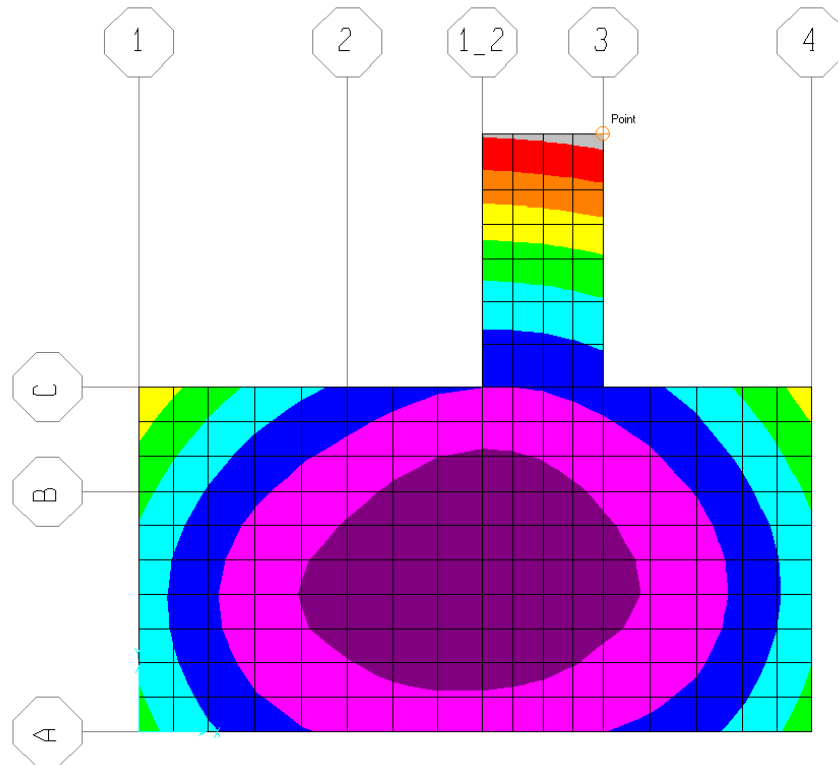
BASE37	0.900	0.900		-1.400					
BASE38	0.900	0.900			-1.400				
BASE39	0.900	0.900				-1.400			
BASE40	0.900	0.900					-1.400		

## 9.2 基礎分析

### 9.2.1 分析基本資料

#### 1. 容許承载力檢核：

承载力檢核考慮載重組合為 BASE04



土壤最大反力為  $4.092(\text{tf}/\text{m}^2) < q_a = 10(\text{tf}/\text{m}^2) \dots \text{OK}$



2. 角變量檢核：

載重組合	基礎最大角變量 $\eta$	最大角變量桿件	檢核角變量 $\eta$
BASE01	1 /10307	B76	$\eta < 1/500 \dots OK$
BASE02	1 /10307	B76	$\eta < 1/500 \dots OK$
BASE03	1 /8970	B111	$\eta < 1/500 \dots OK$
BASE04	1 /8970	B111	$\eta < 1/500 \dots OK$
BASE05	1 /13476	B113	$\eta < 1/333 \dots OK$
BASE06	1 /13476	B113	$\eta < 1/333 \dots OK$
BASE07	1 /7291	B111	$\eta < 1/333 \dots OK$
BASE08	1 /7291	B111	$\eta < 1/333 \dots OK$
BASE09	1 /13038	B5	$\eta < 1/333 \dots OK$
BASE10	1 /13038	B5	$\eta < 1/333 \dots OK$
BASE11	1 /7122	B111	$\eta < 1/333 \dots OK$
BASE12	1 /7122	B111	$\eta < 1/333 \dots OK$
BASE13	1 /6179	B76	$\eta < 1/333 \dots OK$
BASE14	1 /6179	B76	$\eta < 1/333 \dots OK$
BASE15	1 /9526	B76	$\eta < 1/333 \dots OK$
BASE16	1 /9526	B76	$\eta < 1/333 \dots OK$
BASE17	1 /6196	B76	$\eta < 1/333 \dots OK$
BASE18	1 /6196	B76	$\eta < 1/333 \dots OK$
BASE19	1 /9461	B76	$\eta < 1/333 \dots OK$
BASE20	1 /9461	B76	$\eta < 1/333 \dots OK$





3. 基礎最大沉陷量檢核

載重組合	基礎最大沉陷變位 $\delta$ (cm)	最大沉陷點	檢核沉陷變位
BASE01	-0.277	170	$\delta < 5.000(\text{cm}) \dots \text{OK}$
BASE02	-0.277	170	$\delta < 5.000(\text{cm}) \dots \text{OK}$
BASE03	-0.409	170	$\delta < 5.000(\text{cm}) \dots \text{OK}$
BASE04	-0.409	170	$\delta < 5.000(\text{cm}) \dots \text{OK}$
BASE05	-0.412	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE06	-0.412	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE07	-0.435	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE08	-0.435	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE09	-0.413	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE10	-0.413	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE11	-0.433	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE12	-0.433	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE13	-0.409	168	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE14	-0.409	168	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE15	-0.384	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE16	-0.384	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE17	-0.409	168	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE18	-0.409	168	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE19	-0.385	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$
BASE20	-0.385	170	$\delta < 7.500(\text{cm}) \dots \text{OK}$



### 9.3 基礎結構設計

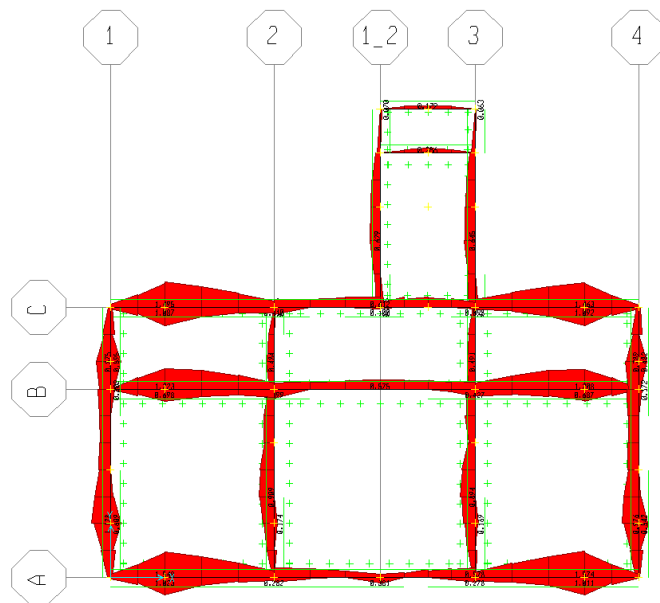
#### 1. 材料強度

混凝土抗壓強度： $280 \text{ kgf/cm}^2$

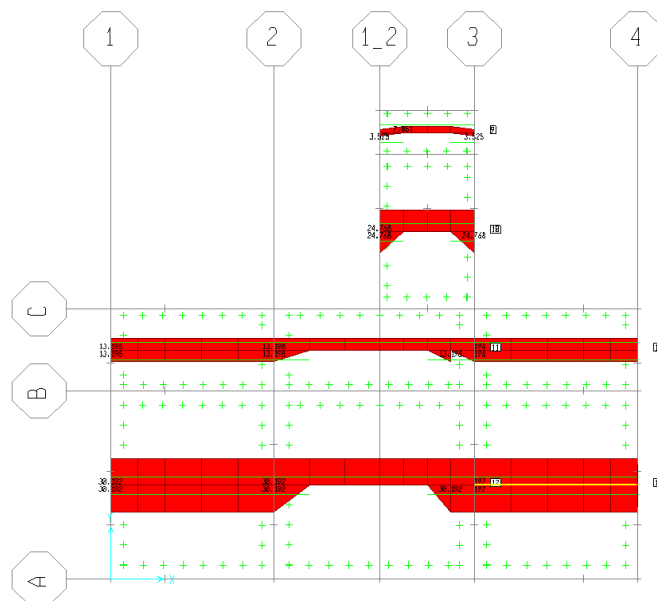
鋼筋降伏強度： $2800 \text{ kgf/cm}^2$  (#3 及以下)

$4200 \text{ kgf/cm}^2$  (#4 及以上)

#### 2. 地樑設計

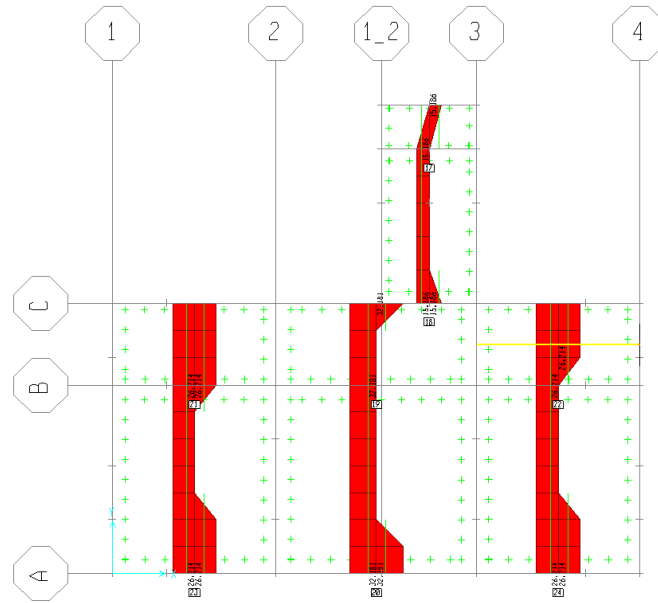


#### 3. 基版 X 向鋼筋需求





#### 4. 基版 Y 向鋼筋需求





## 附錄



POINT "139-1" 807.5 648.888874053955 141.3667  
POINT "140" 702.5 655.90001525879  
POINT "141" 807.5 655.90001525879  
POINT "142" 597.5 697.77795791626  
POINT "142-1" 597.5 697.77795791626 158.1333  
POINT "143" 807.5 697.77795791626  
POINT "143-1" 807.5 697.77795791626 158.1333  
POINT "144" 702.5 711.8000351758  
POINT "145" 807.5 711.8000351758  
POINT "146" 597.5 746.666669845581  
POINT "146-1" 597.5 746.666669845581 174.9  
POINT "147" 807.5 746.666669845581  
POINT "147-1" 807.5 746.666669845581 174.9  
POINT "148" 702.5 767.70004577637  
POINT "149" 807.5 767.70004577637  
POINT "150" 597.5 795.55543899536  
POINT "150-1" 597.5 795.55543899536 191.6667  
POINT "151" 807.5 795.55543899536  
POINT "151-1" 807.5 795.55543899536 191.6667  
POINT "152" 597.5 823.60006103516  
POINT "152-1" 597.5 823.60006103516 201.2846  
POINT "153" 702.5 823.60006103516  
POINT "154" 807.5 823.60006103516  
POINT "154-1" 807.5 823.60006103516 201.2846  
POINT "155" 597.5 844.44465637207  
POINT "155-1" 597.5 844.44465637207 208.4333  
POINT "156" 807.5 844.44465637207  
POINT "156-1" 807.5 844.44465637207 208.4333  
POINT "157" 597.5 893.33339691162  
POINT "157-1" 597.5 893.33339691162 225.2  
POINT "158" 807.5 893.33339691162  
POINT "158-1" 807.5 893.33339691162 225.2  
POINT "159" 597.5 942.22213745117  
POINT "159-1" 597.5 942.22213745117 241.9667  
POINT "160" 807.5 942.22213745117  
POINT "160-1" 807.5 942.22213745117 241.9667  
POINT "161" 597.5 942.500019073486  
POINT "161-1" 597.5 942.500019073486 93  
POINT "161-2" 597.5 942.500019073486 242.0619  
POINT "162" 702.5 942.500019073486  
POINT "162-1" 702.5 942.500019073486 93  
POINT "163" 807.5 942.500019073486  
POINT "163-1" 807.5 942.500019073486 93  
POINT "163-2" 807.5 942.500019073486 242.0619  
POINT "164" 597.5 991.11108799072  
POINT "164-1" 597.5 991.11108799072 258.7333  
POINT "165" 807.5 991.11108799072  
POINT "165-1" 807.5 991.11108799072 258.7333  
POINT "166" 597.5 991.250038146973  
POINT "166-1" 597.5 991.250038146973 93  
POINT "167" 807.5 991.250038146973  
POINT "167-1" 807.5 991.250038146973 93  
POINT "168" 597.5 1039.99996185303  
POINT "168-1" 597.5 1039.99996185303 93  
POINT "168-2" 597.5 1039.99996185303 275.5  
POINT "169" 702.5 1039.99996185303  
POINT "169-1" 702.5 1039.99996185303 93  
POINT "170" 807.5 1039.99996185303  
POINT "170-1" 807.5 1039.99996185303 93  
POINT "170-2" 807.5 1039.99996185303 275.5

S LINE CONNECTIVITIES

LINE 'C1' COLUMN '1' '1' 1  
LINE 'C1-1' COLUMN '1' '1-1' 1  
LINE 'C2' COLUMN '2' '2' 1  
LINE 'C2-1' COLUMN '2' '2-1' 1  
LINE 'C3' COLUMN '3' '3' 1  
LINE 'C3-1' COLUMN '3' '3-1' 1  
LINE 'C4' COLUMN '4' '4' 1  
LINE 'C4-1' COLUMN '4' '4-1' 1  
LINE 'C5' COLUMN '5' '5' 1  
LINE 'C5-1' COLUMN '5' '5-1' 1  
LINE 'C6' COLUMN '6' '6' 1  
LINE 'C6-1' COLUMN '6' '6-1' 1  
LINE 'C7' COLUMN '7' '7' 1  
LINE 'C7-1' COLUMN '7' '7-1' 1  
LINE 'C8' COLUMN '8' '8' 1  
LINE 'C8-1' COLUMN '8' '8-1' 1  
LINE 'C9' COLUMN '9' '9' 1  
LINE 'C9-1' COLUMN '9' '9-1' 1  
LINE 'C10' COLUMN '10' '10' 1  
LINE 'C10-1' COLUMN '10' '10-1' 1  
LINE 'C11' COLUMN '11' '11' 1  
LINE 'C11-1' COLUMN '11' '11-1' 1  
LINE 'C12' COLUMN '12' '12' 1  
LINE 'C12-1' COLUMN '12' '12-1' 1  
LINE 'C13' COLUMN '13' '13' 1  
LINE 'C13-1' COLUMN '13' '13-1' 1  
LINE 'C14' COLUMN '14' '14' 1  
LINE 'C14-1' COLUMN '14' '14-1' 1  
LINE 'C15' COLUMN '15' '15' 1  
LINE 'C15-1' COLUMN '15' '15-1' 1  
LINE 'C16' COLUMN '16' '16' 1  
LINE 'C17' COLUMN '17' '17' 1  
LINE 'C17-1' COLUMN '17' '17-1' 1  
LINE 'C18' COLUMN '18' '18' 1  
LINE 'C18-1' COLUMN '18' '18-1' 1  
LINE 'C19' COLUMN '19' '19' 1  
LINE 'C19-1' COLUMN '19' '19-1' 1  
LINE 'C20' COLUMN '20' '20' 1  
LINE 'C20-1' COLUMN '20' '20-1' 1  
LINE 'C21' COLUMN '21' '21' 1  
LINE 'C21-1' COLUMN '21' '21-1' 1  
LINE 'C22' COLUMN '22' '22' 1  
LINE 'C22-1' COLUMN '22' '22-1' 1  
LINE 'C23' COLUMN '23' '23' 1  
LINE 'C23-1' COLUMN '23' '23-1' 1  
LINE 'C24' COLUMN '24' '24' 1  
LINE 'C24-1' COLUMN '24' '24-1' 1  
LINE 'C24-2' COLUMN '24' '24-2' 1  
LINE 'C24-3' COLUMN '24' '24-3' 1  
LINE 'C25' COLUMN '25' '25' 1  
LINE 'C25-1' COLUMN '25' '25-1' 1  
LINE 'C26' COLUMN '26' '26' 1  
LINE 'C26-1' COLUMN '26' '26-1' 1  
LINE 'C27' COLUMN '27' '27' 1  
LINE 'C27-1' COLUMN '27' '27-1' 1  
LINE 'C28' COLUMN '28' '28' 1  
LINE 'C28-1' COLUMN '28' '28-1' 1  
LINE 'C29' COLUMN '29' '29' 1  
LINE 'C29-1' COLUMN '29' '29-1' 1  
LINE 'C30' COLUMN '30' '30' 1  
LINE 'C30-1' COLUMN '30' '30-1' 1  
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LINE 'C31-1' COLUMN '31' '31-1' 1  
LINE 'C32' COLUMN '32' '32' 1  
LINE 'C32-1' COLUMN '32' '32-1' 1  
LINE 'C33' COLUMN '33' '33' 1  
LINE 'C33-1' COLUMN '33' '33-1' 1  
LINE 'C34' COLUMN '34' '34' 1  
LINE 'C34-1' COLUMN '34' '34-1' 1  
LINE 'C35' COLUMN '35' '35' 1  
LINE 'C35-1' COLUMN '35' '35-1' 1  
LINE 'C36' COLUMN '36' '36' 1  
LINE 'C36-1' COLUMN '36' '36-1' 1  
LINE 'C37' COLUMN '37' '37' 1  
LINE 'C37-1' COLUMN '37' '37-1' 1  
LINE 'C38' COLUMN '38' '38' 1  
LINE 'C38-1' COLUMN '38' '38-1' 1  
LINE 'C39' COLUMN '39' '39' 1  
LINE 'C39-1' COLUMN '39' '39-1' 1  
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LINE 'C40-1' COLUMN '40' '40-1' 1  
LINE 'C41' COLUMN '41' '41' 1  
LINE 'C41-1' COLUMN '41' '41-1' 1  
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LINE 'C42-1' COLUMN '42' '42-1' 1  
LINE 'C43' COLUMN '43' '43' 1  
LINE 'C43-1' COLUMN '43' '43-1' 1  
LINE 'C44' COLUMN '44' '44' 1  
LINE 'C44-1' COLUMN '44' '44-1' 1  
LINE 'C45' COLUMN '45' '45' 1  
LINE 'C45-1' COLUMN '45' '45-1' 1  
LINE 'C46' COLUMN '46' '46' 1  
LINE 'C46-1' COLUMN '46' '46-1' 1  
LINE 'C47' COLUMN '47' '47' 1  
LINE 'C47-1' COLUMN '47' '47-1' 1  
LINE 'C48' COLUMN '48' '48' 1

LINE 'C48-1' COLUMN '48' '48-1' 1  
LINE 'B1' BEAM '1' '1' 0  
LINE 'B2' BEAM '1-1' '3-1' 0  
LINE 'B3' BEAM '3' '4' 0  
LINE 'B4' BEAM '3-1' '4-1' 0  
LINE 'B5' BEAM '3' '5' 0  
LINE 'B6' BEAM '4' '5' 0  
LINE 'B7' BEAM '4-1' '5-1' 0  
LINE 'B8' BEAM '5' '7' 0  
LINE 'B9' BEAM '5-1' '7-1' 0  
LINE 'B10' BEAM '7' '8' '9' 1 0  
LINE 'B11' BEAM '8' '9' '10' 1 0  
LINE 'B12' BEAM '10' '11' '11' 1 0  
LINE 'B13' BEAM '11' '12' '12' 1 0  
LINE 'B14' BEAM '13' '14' 0  
LINE 'B15' BEAM '14' '15' 0  
LINE 'B16' BEAM '15' '16' 0  
LINE 'B17' BEAM '16' '17' 0  
LINE 'B18' BEAM '18' '19' '19' 1 0  
LINE 'B19' BEAM '19' '20' '20' 1 0  
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LINE 'B21' BEAM '21' '22' '22' 1 0  
LINE 'B22' BEAM '23' '24' 0  
LINE 'B23' BEAM '24' '25' 0  
LINE 'B24' BEAM '25' '26' 0  
LINE 'B25' BEAM '26' '27' 0  
LINE 'B26' BEAM '32' '1' '33' 1 0  
LINE 'B27' BEAM '33' '1' '34' 1 0  
LINE 'B28' BEAM '34' '1' '35' 1 0  
LINE 'B29' BEAM '35' '1' '36' 1 0  
LINE 'B30' BEAM '37' '38' 0  
LINE 'B31' BEAM '38' '39' '39' 1 0  
LINE 'B32' BEAM '39' '40' 0  
LINE 'B33' BEAM '40' '41' 0  
LINE 'B34' BEAM '42' '1' '43' 1 0  
LINE 'B35' BEAM '43' '1' '44' 1 0  
LINE 'B36' BEAM '44' '1' '45' 1 0  
LINE 'B37' BEAM '45' '1' '46' 1 0  
LINE 'B38' BEAM '1' '93' 0  
LINE 'B39' BEAM '3' '93' 0  
LINE 'B40' BEAM '4' '96' 0  
LINE 'B41' BEAM '5' '99' 0  
LINE 'B42' BEAM '7' '101' 0  
LINE 'B43' BEAM '47' '48' 0  
LINE 'B44' BEAM '48' '49' '49' 1 0  
LINE 'B45' BEAM '49' '50' 0  
LINE 'B46' BEAM '50' '51' 0  
LINE 'B47' BEAM '54' '1' '55' 1 0  
LINE 'B48' BEAM '55' '1' '56' 1 0  
LINE 'B49' BEAM '56' '1' '57' 1 0  
LINE 'B50' BEAM '57' '1' '58' 1 0  
LINE 'B51' BEAM '59' '60' 0  
LINE 'B52' BEAM '60' '61' 0  
LINE 'B53' BEAM '61' '62' 0  
LINE 'B54' BEAM '62' '63' 0  
LINE 'B55' BEAM '1' '130' 1 0  
LINE 'B56' BEAM '65' '66' 0  
LINE 'B57' BEAM '3' '132' 1 0  
LINE 'B58' BEAM '66' '71' 0  
LINE 'B59' BEAM '4' '133' 1 0  
LINE 'B60' BEAM '71' '72' 0  
LINE 'B61' BEAM '5' '134' 1 0  
LINE 'B62' BEAM '72' '73' 0  
LINE 'B63' BEAM '7' '137' 1 0  
LINE 'B64' BEAM '75' '1' '76' 1 0  
LINE 'B65' BEAM '76' '1' '77' 1 0  
LINE 'B66' BEAM '77' '1' '78' 1 0  
LINE 'B67' BEAM '78' '1' '79' 1 0  
LINE 'B68' BEAM '80' '81' 0  
LINE 'B69' BEAM '81' '82' 0  
LINE 'B70' BEAM '81' '89' 1 0  
LINE 'B71' BEAM '83' '84' 0  
LINE 'B72' BEAM '86' '1' '87' 1 0  
LINE 'B73' BEAM '87' '1' '88' 1 0  
LINE 'B74' BEAM '88' '1' '89' 1 0  
LINE 'B75' BEAM '89' '1' '90' 1 0  
LINE 'B76' BEAM '91' '93' 0  
LINE 'B77' BEAM '91' '2' '93' 0  
LINE 'B78' BEAM '93' '99' 0  
LINE 'B79' BEAM '93' '99' 0  
LINE 'B80' BEAM '93' '1' '99' 1 0  
LINE 'B81' BEAM '99' '101' 0  
LINE 'B82' BEAM '99' '3' '101' 2 0  
LINE 'B83' BEAM '101' '113' 0  
LINE 'B84' BEAM '102' '1' '103' 1 0  
LINE 'B85' BEAM '103' '1' '104' 1 0  
LINE 'B86' BEAM '104' '1' '105' 1 0  
LINE 'B87' BEAM '105' '1' '106' 1 0  
LINE 'B88' BEAM '107' '108' 0  
LINE 'B89' BEAM '108' '109' 0  
LINE 'B90' BEAM '109' '110' 0  
LINE 'B91' BEAM '110' '111' 0  
LINE 'B92' BEAM '114' '1' '115' 1 0  
LINE 'B93' BEAM '115' '1' '116' 1 0  
LINE 'B94' BEAM '116' '1' '117' 1 0  
LINE 'B95' BEAM '117' '1' '118' 1 0  
LINE 'B96' BEAM '91' '130' 0  
LINE 'B97' BEAM '93' '132' 0  
LINE 'B98' BEAM '96' '133' 0  
LINE 'B99' BEAM '99' '135' 0  
LINE 'B100' BEAM '101' '137' 0  
LINE 'B101' BEAM '130' '137' 0  
LINE 'B102' BEAM '121' '122' 0  
LINE 'B103' BEAM '122' '123' 0  
LINE 'B104' BEAM '123' '124' 0  
LINE 'B105' BEAM '113' '137' 0  
LINE 'B106' BEAM '125' '1' '126' 1 0  
LINE 'B107' BEAM '126' '1' '127' 1 0  
LINE 'B108' BEAM '127' '1' '128' 1 0  
LINE 'B109' BEAM '128' '1' '129' 1 0  
LINE 'B110' BEAM '130' '1' '132' 1 0  
LINE 'B111' BEAM '130' '132' 0  
LINE 'B112' BEAM '132' '1' '135' 1 0  
LINE 'B113' BEAM '132' '135' 0  
LINE 'B114' BEAM '135' '1' '137' 1 0  
LINE 'B115' BEAM '135' '137' 0  
LINE 'B116' BEAM '138' '1' '139' 1 0  
LINE 'B117' BEAM '140' '141' 0  
LINE 'B118' BEAM '142' '1' '143' 1 0  
LINE 'B119' BEAM '133' '152' 0  
LINE 'B120' BEAM '134' '153' 0  
LINE 'B121' BEAM '144' '145' 0  
LINE 'B122' BEAM '135' '154' 0  
LINE 'B123' BEAM '146' '1' '147' 1 0  
LINE 'B124' BEAM '148' '149' 0  
LINE 'B125' BEAM '150' '1' '151' 1 0  
LINE 'B126' BEAM '133' '168' 0  
LINE 'B127' BEAM '135' '170' 0  
LINE 'B128' BEAM '153' '154' 0  
LINE 'B129' BEAM '155' '1' '156' 1 0  
LINE 'B130' BEAM '157' '1' '158' 1 0  
LINE 'B131' BEAM '161' '2' '163' 2 0  
LINE 'B132' BEAM '161' '163' 0  
LINE 'B133' BEAM '161' '163' 0  
LINE 'B134' BEAM '164' '1' '165' 1 0  
LINE 'B135' BEAM '164' '1' '165' 1 0  
LINE 'B136' BEAM '166' '1' '167' 1 0  
LINE 'B137' BEAM '163' '1' '164' 1 0  
LINE 'B138' BEAM '168' '2' '170' 2 0  
LINE 'B139' BEAM '168' '170' 0  
LINE 'B140' BEAM '168' '1' '170' 1 0  
LINE 'D1' BRACE '2' '1' 1  
LINE 'D2' BRACE '2' '1' 1  
LINE 'D3' BRACE '6' '7' 1  
LINE 'D4' BRACE '6' '7' 1  
LINE 'D5' BRACE '28' '1' '1' 1  
LINE 'D6' BRACE '28' '1' '1' 1  
LINE 'D7' BRACE '29' '3' '1' 1  
LINE 'D8' BRACE '29' '3' 1  
LINE 'D9' BRACE '30' '5' '1' 1  
LINE 'D10' BRACE '30' '5' 1  
LINE 'D11' BRACE '31' '7' '1' 1  
LINE 'D12' BRACE '31' '7' 1  
LINE 'D13' BRACE '1' '1' '65' 0  
LINE 'D14' BRACE '3' '1' '66' 0  
LINE 'D15' BRACE '44' '2' '20' 1 0

















STEEL CODE PREFERENCES

Steel Design Code : AISC-LRF093
Time History Type : Step-by-Step
Frame Type : Moment Frame
Phi(Bending) : 0.9
Phi(Compression) : 0.85
Phi(Tension) : 0.9
Phi(Shear) : 0.9
Phi(Compression, Angle) : 0.9
Consider Deflection? : No
Deflection Check Type : Ratio
DL Limit, L/ : 240
Super DL+LL Limit, L/ : 120
Live Load Limit, L/ : 360
Total Load Limit, L/ : 240
Total-Camber Limit, L/ : 240
DL Limit, abs : 2.54
Super DL+LL Limit, abs : 2.54
Live Load Limit, abs : 2.54
Total Load Limit, abs : 2.54
Total-Camber Limit, abs : 2.54
Pattern Live Load Factor : 0.75
Stress Ratio Limit : 1.05
Maximum Auto Iteration : 1

COLUMN STEEL STRESS CHECK ELEMENT INFORMATION (AISC-LRF093)

Table with columns: STORY, COLUMN, SECTION, FRAMING, R1/F1, RATIO, L, RATIO, K, LEVEL, LINE, ID, TYPE, FACTOR, MAJOR, MINOR, MAJOR, MINOR. Contains a long list of structural elements and their stress check results.

BEAM STEEL STRESS CHECK ELEMENT INFORMATION (AISC-LRF093)

Table with columns: STORY, BEAM, SECTION, FRAMING, R1/F1, RATIO, L, RATIO, K, LEVEL, BAY, ID, TYPE, FACTOR, MAJOR, MINOR, MAJOR, MINOR. Contains a long list of structural elements and their stress check results.

Table with columns: PRF, ID, SECTION, SECTION, FRAMING, R1/F1, RATIO, L, RATIO, K, LEVEL, LINE, ID, TYPE, FACTOR, MAJOR, MINOR, MAJOR, MINOR. Contains a long list of structural elements and their stress check results.

BRACE STEEL STRESS CHECK ELEMENT INFORMATION (AISC-LRF093)

STORY BRACE SECTION FRAMING R1/F1 RATIO L RATIO K
LEVEL BAY ID TYPE FACTOR MAJOR MINOR MAJOR MINOR

Table with columns: STORY, BRACE, SECTION, FRAMING, R1/F1, RATIO, L, RATIO, K, LEVEL, BAY, ID, TYPE, FACTOR, MAJOR, MINOR, MAJOR, MINOR. Contains a long list of structural elements and their stress check results.

Table with columns for member ID, type, section, properties, and stress ratios. It lists members D39 through D68 and C23 through C29, detailing their cross-sectional dimensions and calculated stress ratios for various loading conditions.

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COLUMN STEEL STRESS CHECK OUTPUT (AISC-LRF99)

Table showing column steel stress check output for levels 2F through 2F. It includes columns for STORY, COLUMN, SECTION, MOMENT INTERACTION CHECK, and SHEAR2, SHEAR3, providing axial, moment, and shear ratios for various column sections and levels.

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BEAM STEEL STRESS CHECK OUTPUT (AISC-LRF99)

Table showing beam steel stress check output for levels 2F through 2F. It includes columns for STORY, BEAM, SECTION, MOMENT INTERACTION CHECK, and SHEAR2, SHEAR3, providing axial, moment, and shear ratios for various beam sections and levels.





02RC67(T) 0.059 = 0.043 + 0.010 + 0.007  
2F D4 U100X100X2.0 02RC67 0.013 02RC72 0.010  
02RC16(C) 0.038 = 0.024 + 0.012 + 0.002  
02RC71(T) 0.292 = 0.210 + 0.077 + 0.005  
PRF D5 U100X100X2.0 02RC68 0.003 02RC71 0.002  
02RC72(C) 0.063 = 0.045 + 0.014 + 0.004  
02RC67(T) 0.048 = 0.028 + 0.002 + 0.018  
2F D6 U100X100X2.0 02RC72 0.012 02RC71 0.015  
02RC68(C) 0.304 = 0.233 + 0.064 + 0.006  
02RC67(T) 0.146 = 0.054 + 0.004 + 0.087  
PRF D7 U100X100X2.0 02RC72 0.004 02RC71 0.002  
02RC68(C) 0.045 = 0.025 + 0.018 + 0.001  
02RC71(T) 0.035 = 0.002 + 0.009 + 0.024  
2F D8 U100X100X2.0 02RC72 0.012 02RC67 0.019  
02RC68(C) 0.165 = 0.090 + 0.069 + 0.006  
02RC71(T) 0.108 = 0.008 + 0.003 + 0.097  
PRF D9 U100X100X2.0 02RC72 0.004 02RC67 0.002  
02RC68(C) 0.041 = 0.025 + 0.016 + 0.001  
02RC71(T) 0.037 = 0.003 + 0.008 + 0.026  
2F D10 U100X100X2.0 02RC72 0.011 02RC71 0.018  
02RC68(C) 0.148 = 0.082 + 0.061 + 0.005  
02RC71(T) 0.101 = 0.004 + 0.001 + 0.097  
PRF D11 U100X100X2.0 02RC67 0.003 02RC67 0.003  
02RC71(C) 0.056 = 0.033 + 0.004 + 0.019  
02RC13(T) 0.012 = 0.008 + 0.003 + 0.001  
2F D12 U100X100X2.0 02RC72 0.009 02RC67 0.015  
02RC67(C) 0.158 = 0.067 + 0.003 + 0.089  
02RC48(T) 0.025 = 0.009 + 0.002 + 0.015  
PRF D13 2SC125X50X20X2 02RC71 0.094 02RC71 0.039  
02RC71(C) 0.125 = 0.032 + 0.038 + 0.055  
02RC71(T) 0.147 = 0.048 + 0.064 + 0.035  
PRF D14 2SC125X50X20X2 02RC71 0.056 02RC67 0.033  
02RC68(C) 0.220 = 0.210 + 0.010 + 0.000  
02RC71(T) 0.150 = 0.046 + 0.059 + 0.045  
PRF D15 U100X100X2.0 02RC68 0.003 02RC71 0.000  
02RC71(C) 0.015 = 0.009 + 0.005 + 0.000  
02RC68(T) 0.021 = 0.013 + 0.008 + 0.000  
PRF D16 2SC125X50X20X2 02RC72 0.050 02RC71 0.009  
02RC72(C) 0.134 = 0.039 + 0.095 + 0.001  
02RC71(T) 0.122 = 0.071 + 0.018 + 0.033  
PRF D17 2SC125X50X20X2 02RC71 0.054 02RC71 0.033  
02RC68(C) 0.110 = 0.098 + 0.011 + 0.001  
02RC71(T) 0.145 = 0.044 + 0.056 + 0.045  
PRF D18 2SC125X50X20X2 02RC68 0.031 02RC71 0.039  
02RC68(C) 0.093 = 0.068 + 0.020 + 0.005  
02RC71(T) 0.134 = 0.043 + 0.038 + 0.053  
PRF D19 U100X100X2.0 02RC68 0.002 02RC71 0.000  
02RC72(C) 0.003 = 0.001 + 0.002 + 0.000  
02RC67(T) 0.014 = 0.009 + 0.004 + 0.000  
PRF D20 U100X100X2.0 02RC67 0.005 02RC71 0.001  
02RC71(C) 0.032 = 0.023 + 0.008 + 0.001  
02RC88(T) 0.011 = 0.009 + 0.002 + 0.000  
2F D21 U100X100X2.0 02RC72 0.020 02RC67 0.029  
02RC13(C) 0.056 = 0.033 + 0.019 + 0.004  
02RC72(T) 0.148 = 0.052 + 0.095 + 0.002  
PRF D22 U100X100X2.0 02RC68 0.008 02RC67 0.004  
02RC72(C) 0.024 = 0.003 + 0.020 + 0.001  
02RC68(T) 0.058 = 0.021 + 0.034 + 0.003  
2F D23 U100X100X2.0 02RC71 0.013 02RC68 0.020  
02RC71(C) 0.183 = 0.092 + 0.084 + 0.007  
02RC13(T) 0.032 = 0.009 + 0.018 + 0.005  
PRF D24 U100X100X2.0 02RC71 0.008 02RC68 0.002  
02RC71(C) 0.075 = 0.029 + 0.045 + 0.002  
02RC11(T) 0.017 = 0.005 + 0.011 + 0.001  
2F D25 U100X100X2.0 02RC71 0.022 02RC68 0.018  
02RC71(C) 0.059 = 0.009 + 0.046 + 0.002  
02RC68(T) 0.096 = 0.038 + 0.029 + 0.030  
2F D26 U100X100X2.0 02RC68 0.008 02RC72 0.000  
02RC71(C) 0.023 = 0.019 + 0.004 + 0.000  
02RC68(T) 0.045 = 0.035 + 0.010 + 0.000  
2F D27 U100X100X2.0 02RC68 0.014 02RC72 0.011  
02RC71(C) 0.044 = 0.016 + 0.025 + 0.003  
02RC68(T) 0.060 = 0.026 + 0.024 + 0.010  
2F D28 U100X100X2.0 02RC72 0.014 02RC72 0.013  
02RC71(C) 0.040 = 0.022 + 0.015 + 0.003  
02RC72(T) 0.075 = 0.029 + 0.025 + 0.021  
2F D29 U100X100X2.0 02RC72 0.007 02RC72 0.000  
02RC71(C) 0.025 = 0.021 + 0.005 + 0.000  
02RC72(T) 0.048 = 0.039 + 0.009 + 0.000  
2F D30 U100X100X2.0 02RC67 0.043 02RC68 0.030  
02RC67(C) 0.103 = 0.007 + 0.087 + 0.009  
02RC72(T) 0.090 = 0.042 + 0.035 + 0.013  
PRF D31 U100X100X2.0 02RC67 0.009 02RC68 0.002  
02RC68(C) 0.030 = 0.002 + 0.002 + 0.025  
02RC67(T) 0.081 = 0.035 + 0.045 + 0.002  
2F D32 U100X100X2.0 02RC67 0.014 02RC68 0.016  
02RC68(C) 0.082 = 0.002 + 0.005 + 0.075  
02RC67(T) 0.179 = 0.078 + 0.088 + 0.013  
PRF D33 2SC125X50X20X2 02RC68 0.057 02RC71 0.028  
02RC71(C) 0.102 = 0.020 + 0.037 + 0.045  
02RC71(T) 0.131 = 0.040 + 0.054 + 0.037  
PRF D34 2SC125X50X20X2 02RC71 0.063 02RC67 0.008  
02RC68(C) 0.127 = 0.035 + 0.090 + 0.001  
02RC71(T) 0.106 = 0.044 + 0.034 + 0.028  
PRF D35 2SC125X50X20X2 02RC68 0.066 02RC71 0.008  
02RC68(C) 0.186 = 0.067 + 0.118 + 0.001  
02RC71(T) 0.151 = 0.043 + 0.076 + 0.031  
PRF D36 2SC125X50X20X2 02RC71 0.073 02RC71 0.007  
02RC68(C) 0.167 = 0.050 + 0.117 + 0.001  
02RC71(T) 0.144 = 0.030 + 0.087 + 0.028  
PRF D37 2SC125X50X20X2 02RC71 0.098 02RC67 0.028  
02RC71(C) 0.109 = 0.040 + 0.066 + 0.003  
02RC71(T) 0.150 = 0.057 + 0.087 + 0.006  
PRF D38 U100X100X2.0 02RC68 0.021 02RC71 0.012  
02RC71(C) 0.028 = 0.001 + 0.005 + 0.021  
02RC68(T) 0.064 = 0.014 + 0.049 + 0.001  
PRF D39 U100X100X2.0 02RC72 0.004 02RC71 0.002  
02RC49(C) 0.015 = 0.010 + 0.005 + 0.001  
02RC68(T) 0.060 = 0.042 + 0.016 + 0.002  
2F D40 U100X100X2.0 02RC68 0.013 02RC71 0.014  
02RC11(C) 0.036 = 0.016 + 0.008 + 0.016  
02RC72(T) 0.175 = 0.091 + 0.079 + 0.005  
PRF D41 U100X100X2.0 02RC72 0.004 02RC67 0.003  
02RC71(C) 0.054 = 0.026 + 0.008 + 0.020  
02RC68(T) 0.048 = 0.033 + 0.013 + 0.002  
2F D42 U100X100X2.0 02RC68 0.010 02RC67 0.014  
02RC67(C) 0.149 = 0.051 + 0.014 + 0.084  
02RC68(T) 0.127 = 0.062 + 0.062 + 0.003  
2F D43 U100X100X2.0 02RC67 0.012 02RC68 0.014  
02RC67(C) 0.294 = 0.222 + 0.070 + 0.002  
02RC11(T) 0.034 = 0.015 + 0.018 + 0.001  
PRF D44 U100X100X2.0 02RC11 0.003 02RC72 0.001  
02RC71(C) 0.054 = 0.041 + 0.012 + 0.001  
02RC11(T) 0.017 = 0.008 + 0.009 + 0.001  
PRF D45 U100X100X2.0 02RC67 0.004 02RC71 0.001  
02RC68(C) 0.041 = 0.022 + 0.005 + 0.013  
02RC67(T) 0.051 = 0.037 + 0.009 + 0.005  
2F D46 U100X100X2.0 02RC67 0.013 02RC68 0.011  
02RC68(C) 0.109 = 0.037 + 0.011 + 0.062  
02RC67(T) 0.180 = 0.091 + 0.084 + 0.006  
PRF D47 2SC125X50X20X2 02RC71 0.093 02RC72 0.013  
02RC71(C) 0.226 = 0.005 + 0.160 + 0.061  
02RC47(T) 0.082 = 0.000 + 0.019 + 0.063  
PRF D48 2SC125X50X20X2 02RC71 0.091 02RC15 0.014  
02RC15(C) 0.108 = 0.001 + 0.041 + 0.066  
02RC71(T) 0.207 = 0.001 + 0.152 + 0.054  
PRF D49 2SC125X50X20X2 02RC71 0.041 02RC71 0.014  
02RC71(C) 0.124 = 0.002 + 0.100 + 0.022  
02RC44(T) 0.035 = 0.000 + 0.011 + 0.024  
PRF D50 2SC125X50X20X2 02RC71 0.040 02RC15 0.010  
02RC68(C) 0.086 = 0.010 + 0.070 + 0.007  
02RC71(T) 0.108 = 0.002 + 0.103 + 0.004  
PRF D51 2SC125X50X20X2 02RC68 0.017 02RC71 0.012  
02RC67(C) 0.118 = 0.000 + 0.082 + 0.036  
02RC71(T) 0.137 = 0.001 + 0.100 + 0.036  
PRF D52 2SC125X50X20X2 02RC68 0.020 02RC67 0.008  
02RC68(C) 0.088 = 0.011 + 0.070 + 0.007  
02RC71(T) 0.128 = 0.003 + 0.103 + 0.022  
PRF D53 2SC125X50X20X2 02RC71 0.064 02RC71 0.014  
02RC68(C) 0.101 = 0.028 + 0.066 + 0.007  
02RC71(T) 0.111 = 0.002 + 0.078 + 0.031  
PRF D54 2SC125X50X20X2 02RC71 0.064 02RC67 0.007  
02RC68(C) 0.103 = 0.013 + 0.079 + 0.011  
02RC71(T) 0.096 = 0.004 + 0.079 + 0.013  
2F D55 C125X50X20X2.0 k1>= 200 02RC68 0.026 02RC68 0.001  
02RC49(C) 0.093 = 0.086 + 0.006 + 0.001





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COMBO 'BASE15'
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COMBOFACTOR 'BASE15' 'SDL' 1
COMBOFACTOR 'BASE15' 'LL' 1
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COMBOFACTOR 'BASE15' 'WAN' 1
COMBO 'BASE16'
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COMBOFACTOR 'BASE16' 'SDL' 1
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COMBOFACTOR 'BASE17' 'LL' 1
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COMBOFACTOR 'BASE22' 'WAN' 1.4
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COMBOFACTOR 'BASE23' 'SDL' 1.2
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COMBOFACTOR 'BASE24' 'SDL' 1.2
COMBOFACTOR 'BASE24' 'LL' 1.6
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COMBOFACTOR 'BASE25' 'LL' 1
COMBOFACTOR 'BASE25' 'EXP' 1.4
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COMBOFACTOR 'BASE26' 'EYP' 1.4
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XSTRIP '11' 362.5 417.5 807.5 417.5 807.5 600 362.5 600
XSTRIP '12' 807.5 417.5 362.5 417.5 362.5 0 807.5 0
XSTRIP '13' 362.5 417.5 362.5 600 0 600 0 417.5
XSTRIP '14' 807.5 600 807.5 417.5 1170 417.5 1170 600
XSTRIP '15' 362.5 417.5 0 417.5 0 0 362.5 0
XSTRIP '16' 1170 417.5 807.5 417.5 807.5 0 1170 0
YSTRIP '17' 597.5 942.5 807.5 942.5 807.5 1040 597.5 1040
YSTRIP '18' 807.5 942.5 597.5 942.5 597.5 600 807.5 600
YSTRIP '19' 362.5 417.5 807.5 417.5 807.5 600 362.5 600
YSTRIP '20' 807.5 417.5 362.5 417.5 362.5 0 807.5 0
YSTRIP '21' 362.5 417.5 362.5 600 0 600 0 417.5
YSTRIP '22' 807.5 600 807.5 417.5 1170 417.5 1170 600
YSTRIP '23' 362.5 417.5 0 417.5 0 0 362.5 0
YSTRIP '24' 1170 417.5 807.5 417.5 807.5 0 1170 0
$GROUPS
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$END OF MODEL FILE

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B96	0.000	600.000	-13862.519	7345.544	798.65				
B97	362.500	417.500	-28329.208	0.000	365.00				
B97	362.500	480.000	-43820.989	-40763.783	0.000	0.000	365.00	163.50	
B97	362.500	540.000	-33119.372	-31700.927	0.000	0.000	163.50	571.35	
B97	362.500	600.000	-4355.632	6963.327			571.35		
B99	807.500	417.500	-39665.341	1599.749	486.02				
B99	807.500	480.000	-44430.682	-41554.457	0.000	0.000	486.02	213.77	
B99	807.500	540.000	-34195.584	-37314.808	0.000	0.000	213.77	475.51	
B99	807.500	600.000	-11538.038	0.000	475.51				
B100	1170.000	417.500	-56789.380	8255.978	641.55				
B100	1170.000	480.000	-71358.991	-70651.275	42243.418	43670.437	641.55	703.87	
B100	1170.000	540.000	-30584.040	-39307.234	3890.774	16708.732	703.87	763.64	
B100	1170.000	600.000	-13370.134	7888.383	763.64				
B111	0.000	600.000	-15036.601	8232.654	1075.46				
B111	60.000	600.000	-67034.775	-64925.253	42796.442	33647.645	1075.46	1114.93	
B111	120.000	600.000	-129223.597	-134940.743	96974.123	98278.993	1114.93	676.46	
B111	200.833	600.000	-109322.732	-104993.101	51136.565	50851.458	676.46	415.65	
B111	281.667	600.000	-75894.946	-74414.295	30432.147	29840.908	415.65	603.32	
B111	362.500	600.000	-34612.691	29853.946	603.32				
B113	362.500	600.000	-41979.560	37183.192	545.62				
B113	440.833	600.000	-42836.899	-42302.579	2151.850	20.311	545.62	325.61	
B113	519.167	600.000	-49823.648	-54737.484	0.000	0.000	325.61	359.27	
B113	597.500	600.000	-55435.133	-27347.872	9066.094	5667.631	359.27	651.37	
B113	650.000	600.000	-54986.048	-43336.818	0.000	0.000	651.37	287.84	
B113	702.500	600.000	-5448.414	-52962.253	0.000	0.000	287.84	295.31	
B113	755.000	600.000	-42492.762	-47800.198	0.000	999.679	295.31	559.74	
B113	807.500	600.000	-25593.793	8866.590	559.74				
B115	807.500	600.000	-43023.443	11472.096	537.28				
B115	888.333	600.000	-76356.703	-79983.979	18853.003	23408.611	537.28	370.43	
B115	969.167	600.000	-109926.999	-109909.010	48348.147	48823.857	370.43	742.00	
B115	1050.000	600.000	-132022.715	-126871.526	98663.223	97517.538	742.00	1104.81	
B115	1110.000	600.000	-63825.965	-66163.033	34883.491	43389.341	1104.81	1071.71	
B115	1170.000	600.000	-13701.546	8166.520	1071.71				
B126	597.500	600.000	-21309.532	20657.133	496.56				
B126	597.500	674.533	-31318.605	-37266.270	0.000	0.000	496.56	263.81	
B126	597.500	749.067	-50948.721	-55220.932	0.000	0.000	263.81	109.71	
B126	597.500	823.600	-54541.683	-51838.720	68.651	0.000	109.71	79.39	
B126	597.500	883.050	-47163.847	-44174.248	0.000	0.000	79.39	312.82	
B126	597.500	942.500	-25622.356	-19144.121	0.000	0.000	312.82	214.28	
B126	597.500	1040.000	-1966.549	6329.519	214.28				
B127	807.500	600.000	-33611.405	15739.009	538.84				
B127	807.500	674.533	-44897.881	-39832.333	0.000	0.000	538.84	279.58	
B127	807.500	749.067	-58371.747	-56771.046	0.000	0.000	279.58	203.01	
B127	807.500	823.600	-55780.154	-51331.472	3811.189	528.067	203.01	77.53	
B127	807.500	883.050	-49093.500	-48133.132	0.000	218.867	77.53	274.60	
B127	807.500	942.500	-31807.923	-21264.224	2784.656	92.493	274.60	201.88	
B127	807.500	1040.000	-2123.488	5680.576	201.88				
B132	597.500	942.500	-346.435	3033.894	338.38				
B132	650.000	942.500	-15478.522	-17204.437	0.000	0.000	338.38	232.77	
B132	702.500	942.500	-24913.920	-25927.967	0.000	0.000	232.77	267.58	
B132	755.000	942.500	-16791.521	-16577.350	0.000	0.000	267.58	367.98	
B132	807.500	942.500	-1720.148	4341.905	367.98				
B139	597.500	1040.000	-2816.856	2305.569	317.92				
B139	650.000	1040.000	-14385.138	-16192.365	0.000	0.000	317.92	97.66	
B139	702.500	1040.000	-16202.128	-15898.748	0.000	0.000	97.66	86.23	
B139	755.000	1040.000	-15884.031	-13583.504	0.000	0.000	86.23	279.30	
B139	807.500	1040.000	-2567.351	1432.054	279.30				