附件一之二

工程名稱：菇類栽培場標準圖樣 11368_M 型結構計算

工程地點：適用基本設計風速 V_{10}(C)採用 37.5 m/s 地區

結構計算書

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1. 基本說明

1.1. 基地位置及現況

本案農糧署菇類栽培場結構分析，基本設計風速 V_{10}(C)採用 37.5 m/s，適用地區按建築物耐風設計規範及解說第二章第 2.4 條規定區域。

1.2. 建築設計基本說明

本案為地上一層結構，為農民栽種溫室所使用，屋頂為烤漆清板，外牆面主要為烤漆清板。

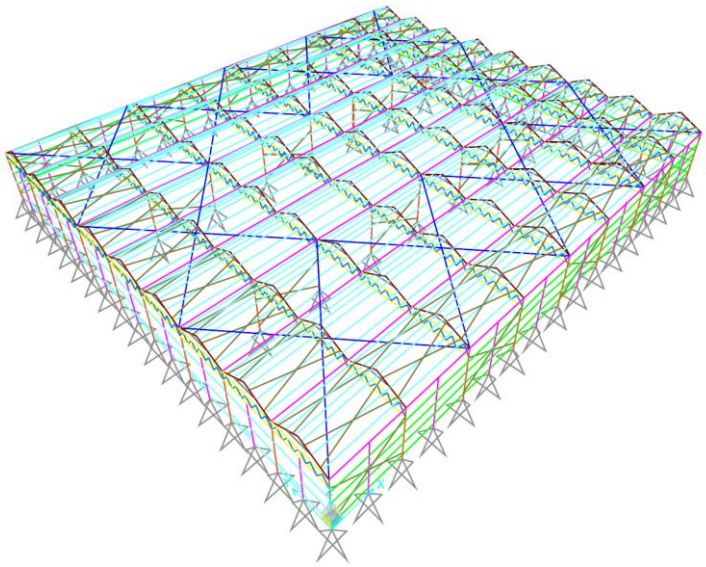


圖 1.1 菇類栽培場 3D 示意圖

1.3. 結構系統說明

本結構採用梁柱鋼架系統，脊高為 4.3 公尺，柱高為 3.5 公尺。

1.4. 設計載重

結構體之重量由程式自行計算，設計載重以面載重施加於屋頂與牆面。亦包含正立面 54”負壓風扇。

屋面材料採用「烤漆鋼板、塑膠布、PVC 板等」輕材料，平均荷重為 5Kg/cm^2 加上桁條平均荷重約 8~10Kg/cm^2。本計畫在結構設計上暫不考慮設置負重較大的太陽能板之規劃，避免造成農民造價成本的增加。

載重如下：

額外靜載重		
烤漆清板重量	5	kgf/m^2
總重	5	kgf/m^2
活載重		
LL	5	kgf/m^2
總重	5	kgf/m^2

1.5. 設計規範及參考書目

設計規範及參考書目：

(1) 最新建築技術規則，民國 110 年版
(2) 建築物耐震設計規範及解說，內政部，民國 100 年版
(3) 建築物耐風設計規範及解說，內政部，民國 103 年版
(4) 鋼結構容許應力設計法規範及解說，內政部，民國 99 年版
(5) 鋼結構極限強度設計法規範及解說，內政部，民國 99 年版
(6) 鋼構造建築物施工規範，內政部，民國 96 年版
(7) 冷軋型鋼構造建築物結構設計規範及解說，內政部，民國 105 年版
(8) 建築物基礎構造設計規範，內政部，民國 90 年 10 月
(9) 溫室安全構造手冊，台灣農業設施協會，民國 110 年 12 月
(10) 鋼構造建築物 鋼結構施工規範 國土署 2007 年
(11) 鋼結構廠房 結構設計手冊 TISC 2023 年

1.6. 結構材料規格

CNS 4435 一般結構用碳鋼管 STK260、STK400

CNS 7141 一般結構用正方形及矩形碳鋼鋼管 STKR400

CNS 6183 一般結構用輕型鋼 SSC400

CNS 2473 一般結構用軋鋼料 SS400、A36

CNS 13812 建築結構用軋鋼料 SN400A

CNS 4426 基礎螺栓

斷面尺寸：依附件一結構平面圖

1.7. 分析設計軟體

CSI-Sap2000 結構分析程式。

1.8. 結構分析模擬

- 分析設計軟體：CSI-Sap2000 結構分析程式。
- 梁、柱以 Frame Element 模擬。
- 外加靜載重以面載重施加於屋頂元素。

1.9. 分析載重名稱定義

DL	：靜載重
SDL	：額外靜載重(塑膠布)
LL	：活載重(雨水載重)
W_{WX}	：X 向側向風壓
W_{WY}	：Y 向側向風壓
W_{TX}	：X 向屋頂風力
W_{TY}	：Y 向屋頂風力

1.10.設計風力計算

風力計算資料詳附件 1
設計風壓力大於地震力，故本案以風力做為設計考量。

2. 結構設計

本案採用溫室安全構造手冊設計。

2.1. 設計載重組合

本案經計算得知設計風力大於地震力，載重組合以風力做為設計考量，故載重組合不考量含地震力之組合；依據 110 年溫室安全構造手冊建議採用之載重組合如下：

採熱軋型鋼構材載重組合

(1). DL+ LL

(2). DL+ 0.75 (LL±WL)

(3). 0.7 DL ± WL

採冷軋型鋼構材載重組合

(1). DL + LL

(2). DL + WL

(3). DL + 0.75LL + 0.75 WL

(4). 0.6 DL + WL

基座錨栓檢核採 LRFD 設計

(1). 1.4DL

(2). 1.2DL+ 1.6LL

(3). 0.9DL ± 1.3WL

(4). 1.2DL ± WL

(5). 1.2DL + 0.5LL ± 1.3WL

(6). 1.2DL + 1.0LL ± 1.3WL

(7). 1.2DL ± 0.8WL

2.2. 標準圖耐風分析結果

2.2.1. 標準圖說分析模型

本案依據收集到之結構圖建立 3D 分析模型，如圖 2.1，如有施作獨立基腳，分析模型以固定端模擬，其他則以鉸接端方式模擬。

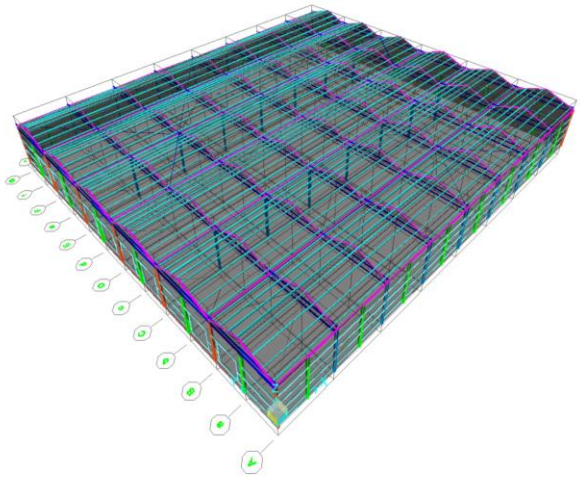
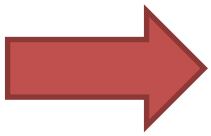


圖 2.1 分析模型 3D 圖

X 向



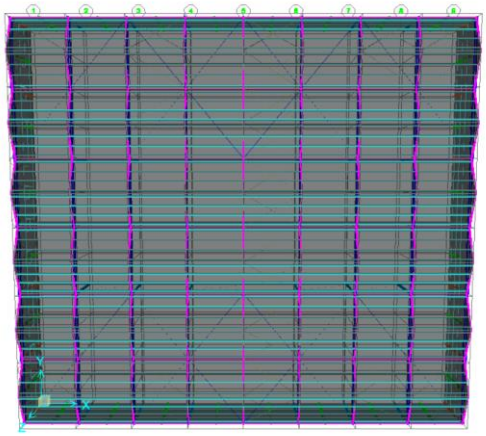
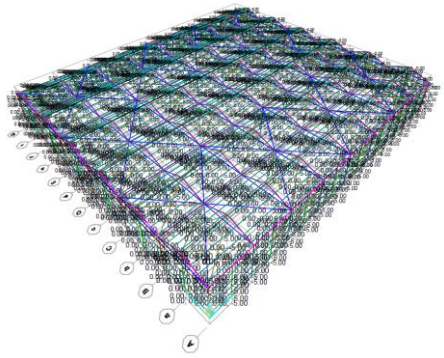


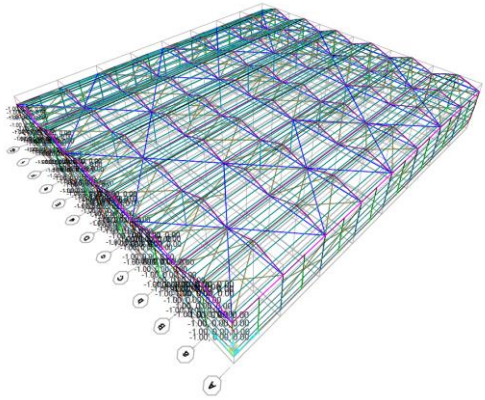
圖 2.2 溫室俯視圖

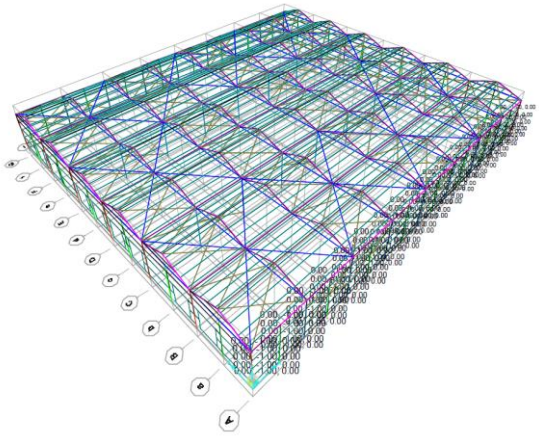
2.2.2. 載重配置

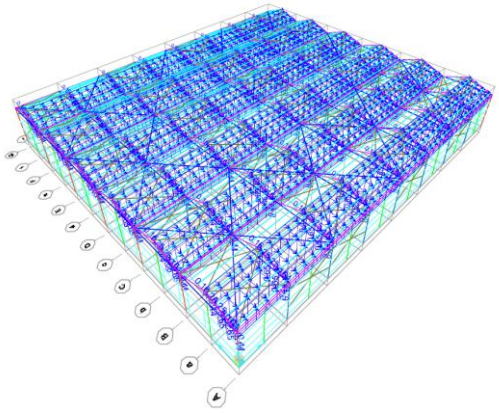
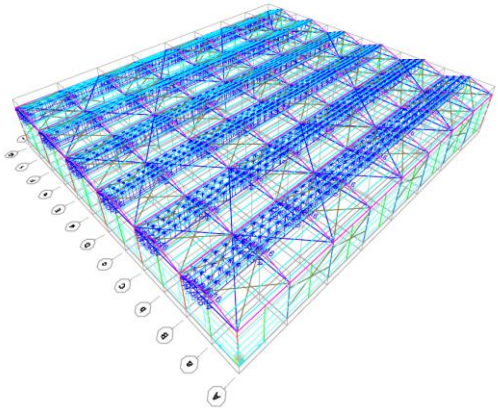
設計載重以面載重的方式加載於面上，其加載方式如表 2.1。

表 2.1 分析模型各加載載重分佈情況

額外靜載重


X 向側向風力


Y 向側風力


屋頂風力

屋頂風力


2.2.3. **結構分析結果**

分析結果，主要構件應力比小於 1.0，故可符合安全性需求。

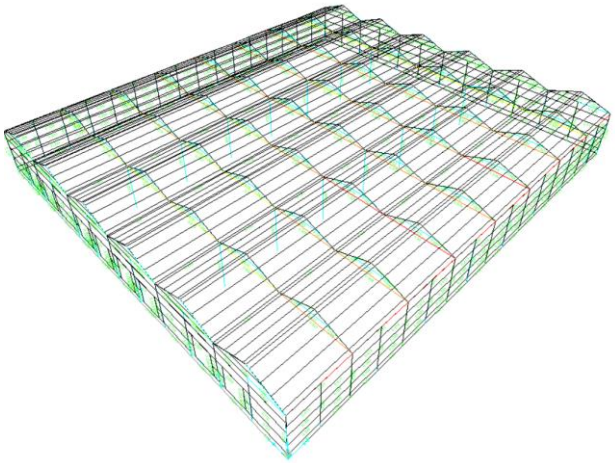


圖 2.2 主構件應力比圖

2.2.4. **基座錨栓及基礎檢核**

本菇類栽培場錨栓檢核採用靜載重與活載重及風力作用檢核，基座錨栓之基座板設置於 10cm 地坪下方，降低螺栓及基座板損壞的狀況，當溫室結構經強風、強震後，應檢視基座模栓是否穩固，如有損壞應做適當修復。

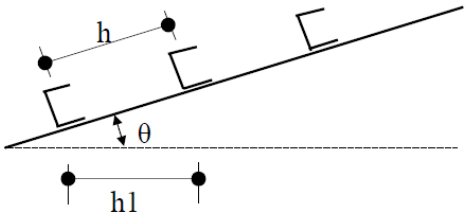
整體基礎則採用 10cm 地坪採用#3@20 公分配筋，作為結構物之板基礎，當溫室結構經強風、強震後，應檢視基礎是否穩固，如有損壞應做適當修復。主立柱下方亦做獨立基礎，副立柱則以 RC 柱頭往下延伸以錨定基座錨栓。

2.2.5. 桁條檢核

桁　條　設　計

一．基本資料

1.桁條跨度 L=	400	cm
2.防垂桿間距 L'=	400	cm
3.桁條間距 h=	70	cm
4.屋頂 θ=	25	度
5.桁條水平間距 h_1=	63.4	cm



二．載重計算

1.靜載重 W_g=	5	kg/m^2	
2.活載重 W_l=	5	kg/m^2	
3.風載重 W_w= cq =	-45.5	kg/m^2	其中 c= -0.5
			q= 91 kg/m^2
4.設計載重 $W_u = [W_g+W_l,\ 0.75(W_g+1.25W_w)]_{MAX}$=	38.9	kg/m^2	
			(由 Ww 控制)

三．應力檢核

	1	2	3	4	5	6	7
	C-75*45*15*2	C-150*65*	C-150*65*	C-75*45*1	BOX-125*75*3.2		
Sx=	9.9	44.3	53.5	33	41.1		
Sy=	4.24	12.2	14.5	9.12	31.1		
Ix=	37.1	332	401	248	257		

Try C-75*45*15*2.3

S_x=	9.9	cm^3
S_y=	4.24	cm^3
I_x=	37.1	cm^4

1.強軸載重分量 $W_x = W_u h_1 \cos\theta$=	22.37	kg/m	
2.弱軸載重分量 $W_y = W_u h_1 \sin\theta$=	10.43	kg/m	
3.強軸彎矩 $M_x = W_x L^2/8$=	4.47	t-cm	
4.弱軸彎矩 $M_y = W_y (L')^2/8$=	2.09	t-cm	
5.容許撓曲應力 $F_{bx}=F_{by}=0.6F_y$=	1.44	t/cm^2,	其中 F_y= 2.4 t/cm^2
6.兩向彎矩交互作用檢核			
$(M_x/S_x)/F_{bx}+(2M_y/S_y)/F_{by}$=	1.00	<1,	OK!

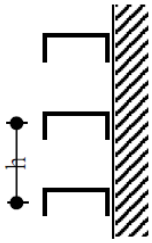
四．撓度檢核

$\delta = 5W_xL^4/(384EI_x)$= 0.96 cm (= L418 < L/150, OK!)

圍 梁 設 計

一．基本資料

1.圍梁跨度 L= 400 cm
2.防垂桿間距 L'= 400 cm
3.圍梁間距 h= 70 cm



二．載重計算

1.靜載重 W_g= 5 kg/m^2
2.風載重 W_w= cq = 81.6 kg/m^2 其中 c= 0.8
q= 102 kg/m^2

三．應力檢核

Try C-75*45*15*2.3
S_x= 9.9 cm^3
S_y= 4.24 cm^3
I_x= 37.1 cm^4

1.強軸載重分量 $W_x = 0.75*1.25*W_w h$ = 53.6 kg/m
2.弱軸載重分量 $W_y = 0.75*W_g h$ = 2.6 kg/m
3.強軸彎矩 $M_x = W_x L^2/8$= 10.71 t-cm
4.弱軸彎矩 $M_y = W_y(L')^2/8$= 0.53 t-cm
5.容許撓曲應力 $F_{bx}=F_{by}=0.6F_y$ 1.5 t/cm^2, 其中 F_y= 2.5 t/cm^2
6.兩向彎矩交互作用檢核
$(M_x/S_x)/F_{bx}+(2M_y/S_y)/F_{by}$= 0.89 <1, OK!

四．撓度檢核

$\delta = 5W_x L^4/(384EI_x)$= 2.29 cm(= L/ 175 < L/90, OK!)

附件1 風力計算

一、順風向風力計算

座落於 地況C：平坦開闊之地面 ，依規範2.2 可知大氣邊界層平均風速剖面指數率公式指數α= 0.15 梯度高度Z_g=300

依規範第2.4條 設計風速$V_{10}(C)$=37.5 m/sec

$$V_h = 1.666 V_{10}(C)(\frac{h}{Z_g})^{\alpha} =$$

建築物高度處設計風速依規範第2.6條解說，知 32.684 m/sec

風速壓依據規範第(2.6)式為$q(z) = 0.06K(z)K_{zt}[I \cdot V_{10}(C)]^2$，其中$K_{zt}$為地形係數；I=0.9；$V_{10}(C)$=37.5 m/sec

$K(z) = 2.774(\frac{z}{Z_g})^{2\alpha}$ ；z≧5m，$K(z) = 2.774(\frac{5}{Z_g})^{2\alpha}$ ；z < 5m，

【各樓層風速表】

樓層	高度 m	Kzt(z)	K(z)	q(z)
1 F	3.515	1.000	0.8122	55.51

q(h)=55.51 kgf/m^2

本建築物的 *fn* = 5.715 Hz, B = 28.80 m

依據規範第1.3條的定義屬於普通建築物

普通建築物之陣風反應因子依規範第(2.9)式決定，如下式所示：

$$G = 1.927\left(\frac{\left(1+1.7g_Q I_{\bar{z}} Q\right)}{1+1.7g_V I_{\bar{z}}}\right)$$ =1.791

式中g_Q和g_V均可取3.4

紊流強度$I_{\bar{z}}$ 依規範第(2.10)式計算：$I_{\bar{z}} = c(10/\bar{z})^{1/6} =$ 0.2285

紊流積分尺度$L_{\bar{z}} = \ell(\bar{z}/10)^{\bar{\varepsilon}} =$ 129.6

$$Q = \sqrt{\frac{1}{1+0.63\left(\frac{B+h}{L_{\bar{z}}}\right)^{0.63}}}$$

背景反應 = 0.8815

普通建築物順風向單面之設計風壓*p*，依規範2.1式計算：

$p=qGC_p-q_i(GC_{pi})$

其中由規範表2.4可知，L/B=1.111

迎風面q=q(z)，C_p=0.8 ；

背風面q=q(h)，C_p=-0.4778 ；

GC_{pi}取用0.375

各高度層順風向迎風面設計風壓計算如$p_1(z) = q(z)G_f C_p - q(h)(GC_{Pi})$

各高度層順風向背風面設計風壓計算如$p_2(z) = q(h)G_f C_p - q(h)(GC_{Pi})$

順風向設計風壓 = 迎風面設計風壓 - 背風面設計風壓 = $p_1(z)$ - $P_2(z)$

【各樓層順風向風力表】

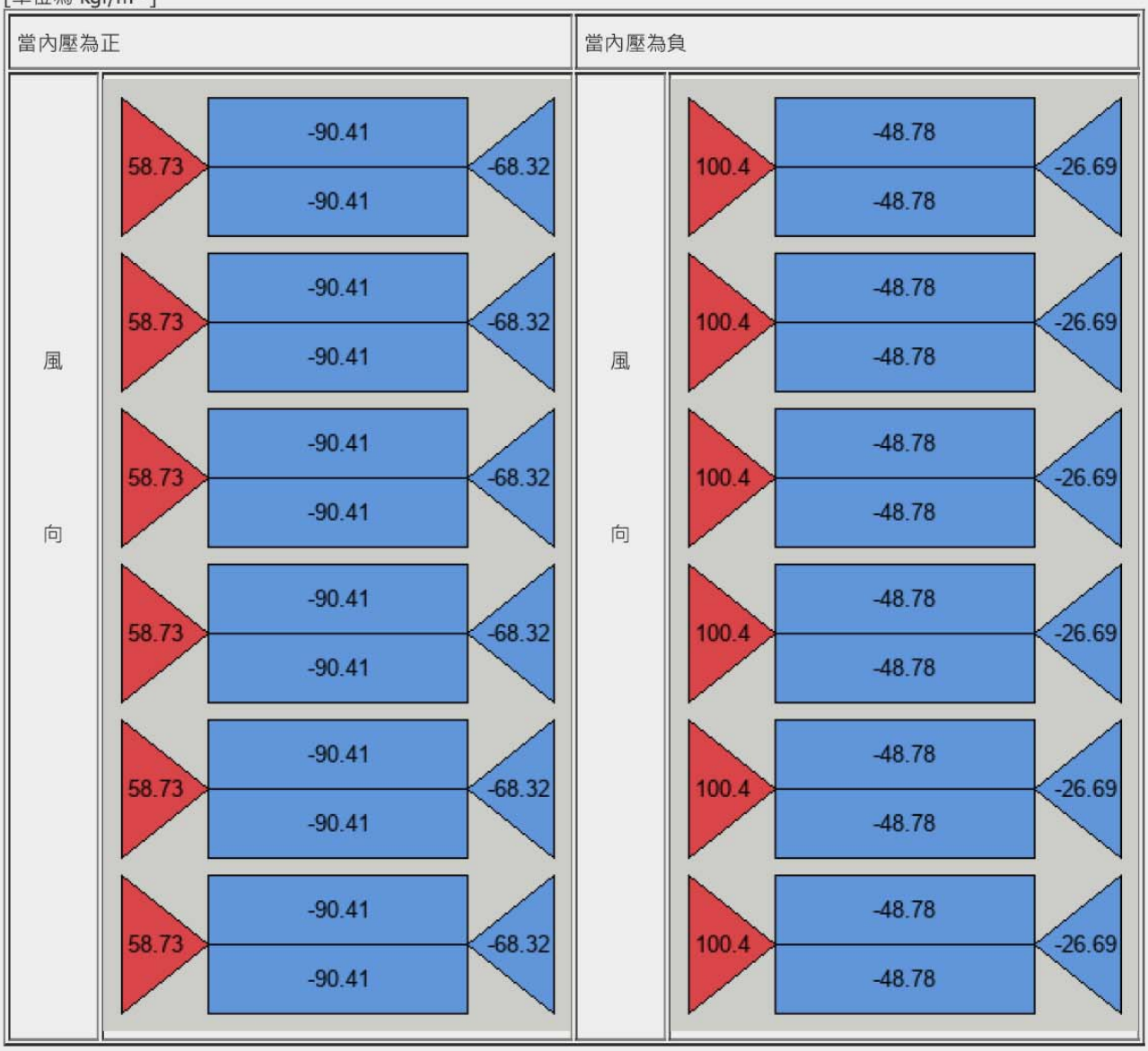
樓層	高度 m	面積 m^2	$p_1(z)$ (kgf/m^2)	$p_2(z)$ (kgf/m^2)	順風向設計風壓 (kgf/m^2)	順風向設計風力 (t)
1 F	3.515	50.62	58.73	-68.32	127.0	6.431
					基底剪力：	6.431

【各樓層順風向各牆面設計風壓表】 *上下兩值分別為當內壓為正負兩種狀況

樓層	高度 m	設計風壓 (kgf/m^2)		
		迎風面牆	側牆	背風面牆
1 F	3.515	58.73 100.4		-68.32 -26.69

屋頂面各面風壓值(屋頂上視展開圖pxyx5.1)

[單位為 kgf/m^2]



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$$V_h = 1.666 V_{10}(C)(\frac{h}{Z_g})^{\alpha} =$$

建築物高度處設計風速依規範第2.6條解說，知 32.684 m/sec

風速壓依據規範第(2.6)式為$q(z) = 0.06K(z)K_{zt}[I \cdot V_{10}(C)]^2$，其中$K_{zt}$為地形係數；I=0.9；$V_{10}(C)$=37.5 m/sec

$K(z) = 2.774(\frac{z}{Z_g})^{2\alpha}$ ；z≧5m，$K(z) = 2.774(\frac{5}{Z_g})^{2\alpha}$ ；z < 5m，

【各樓層風速表】

樓層	高度 m	Kzt(z)	K(z)	q(z)
1 F	3.515	1.000	0.8122	55.51

q(h)=55.51 kgf/m^2

本建築物的 *fn* = 5.715 Hz, B = 32.00 m

依據規範第1.3條的定義屬於普通建築物

普通建築物之陣風反應因子依規範第(2.9)式決定，如下式所示：

$$G = 1.927\left(\frac{\left(1+1.7g_Q I_{\bar{z}} Q\right)}{1+1.7g_V I_{\bar{z}}}\right)$$ =1.784

式中g_Q和g_V均可取3.4

紊流強度$I_{\bar{z}}$ 依規範第(2.10)式計算：$I_{\bar{z}} = c(10/\bar{z})^{1/6} =$ 0.2285

紊流積分尺度$L_{\bar{z}} = \ell(\bar{z}/10)^{\bar{\varepsilon}} =$ 129.6

$$Q = \sqrt{\frac{1}{1+0.63\left(\frac{B+h}{L_{\bar{z}}}\right)^{0.63}}}$$

背景反應 = 0.8756

普通建築物順風向單面之設計風壓*p*，依規範2.1式計算：

$p=qGC_p-q_i(GC_{pi})$

其中由規範表2.4可知，L/B=0.9000

迎風面q=q(z)，C_p=0.8 ；

背風面q=q(h)，C_p=-0.5000 ；

GC_{pi}取用0.375

各高度層順風向迎風面設計風壓計算如$p_1(z) = q(z)G_f C_p - q(h)(GC_{Pi})$

各高度層順風向背風面設計風壓計算如$p_2(z) = q(h)G_f C_p - q(h)(GC_{Pi})$

順風向設計風壓 = 迎風面設計風壓 - 背風面設計風壓 = $p_1(z)$ - $P_2(z)$

【各樓層順風向風力表】

樓層	高度 m	面積 m^2	$p_1(z)$ (kgf/m^2)	$p_2(z)$ (kgf/m^2)	順風向設計風壓 (kgf/m^2)	順風向設計風力 (t)
1 F	3.515	56.24	58.43	-70.34	128.8	7.242
					基底剪力：	7.242

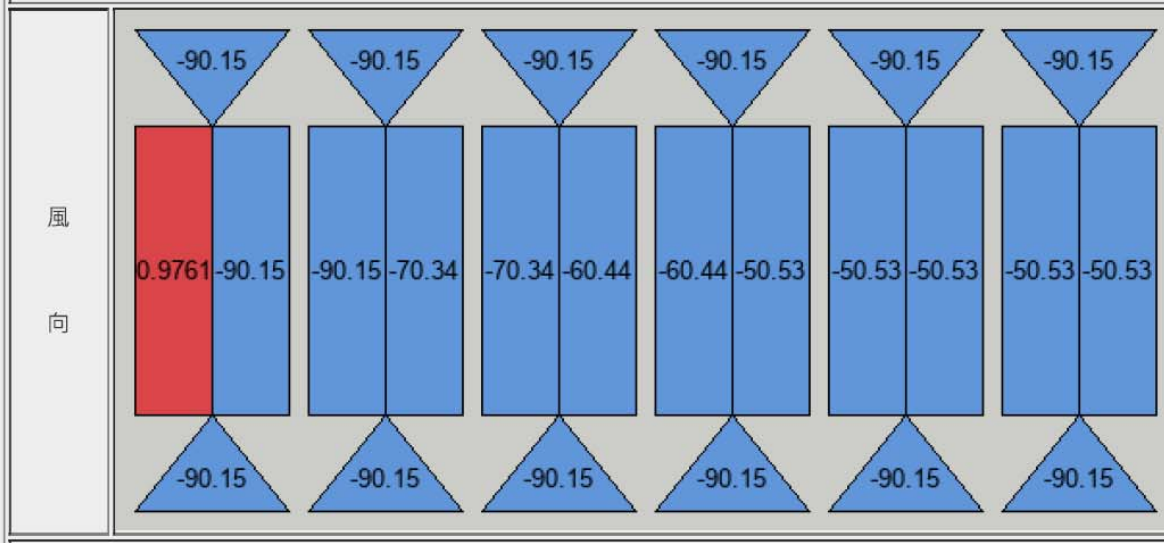
【各樓層順風向各牆面設計風壓表】 *上下兩值分別為當內壓為正負兩種狀況

樓層	高度 m	設計風壓 (kgf/m^2)		
		迎風面牆	側牆	背風面牆
1 F	3.515	58.43 100.1		-70.34 -28.71

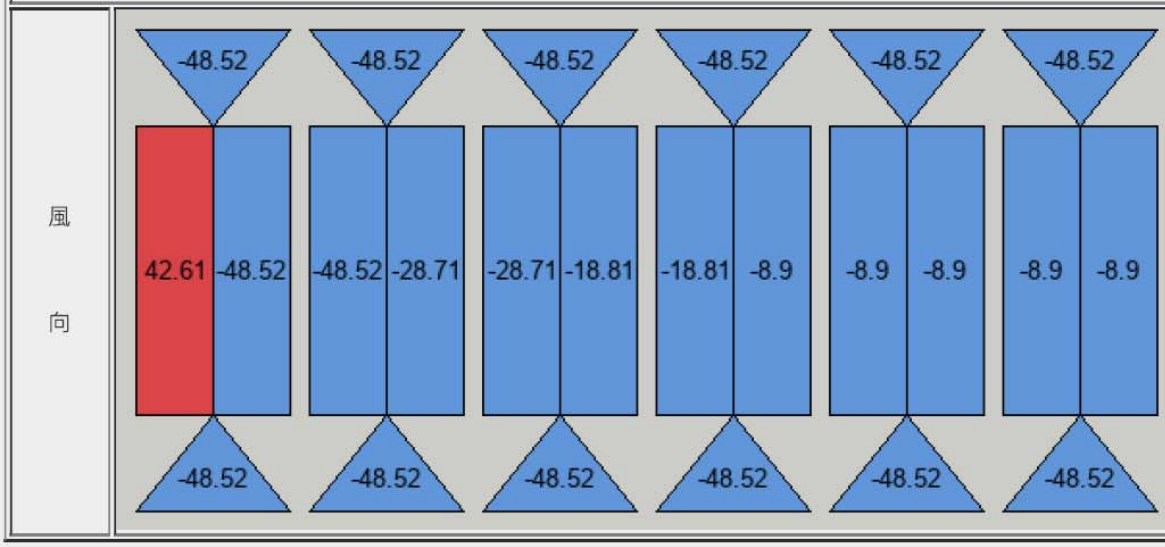
屋頂面各面風壓值(屋頂上視展開圖pxyy5.1)

[單位為 kgf/m^2]

當內壓為正



當內壓為負



附件2 SAP2000分析資料

TABLE: Steel Design 1 - Summary Data - AISC360-05-IBC2006

Frame	DesignSect	DesignType	Status	Ratio	RatioType	Combo	Location
Text	Text	Text	Text	Unitless	Text	Text	cm
187	BOX-100x50x2	Brace	No Messages	0.295615	PMM	W0.6DB01	128.16
189	BOX-100x50x2	Brace	No Messages	0.309577	PMM	W0.6DB01	93.207
201	BOX-150X75X4(2)	Column	No Messages	0.428648	PMM	WDA02	0
203	BOX-150X75X4(2)	Column	No Messages	0.37117	PMM	WDA02	0
205	BOX-150X75X4(2)	Column	No Messages	0.364469	PMM	WDA02	0
207	BOX-150X75X4(2)	Column	No Messages	0.361819	PMM	WDA02	0
209	BOX-150X75X4(2)	Column	No Messages	0.362467	PMM	WDA02	0
211	BOX-150X75X4(2)	Column	No Messages	0.416417	PMM	WDA02	0
213	BOX-150X75X4(2)	Column	No Messages	0.603044	PMM	WDA04	0
215	BOX-150X75X4(2)	Column	No Messages	0.526372	PMM	WDA04	0
217	BOX-150X75X4(2)	Column	No Messages	0.536001	PMM	WDA04	0
219	BOX-150X75X4(2)	Column	No Messages	0.532051	PMM	WDA04	0
221	BOX-150X75X4(2)	Column	No Messages	0.513956	PMM	WDA04	0
223	BOX-150X75X4(2)	Column	No Messages	0.585064	PMM	WDA04	0
225	BOX-150X75X4(2)	Column	No Messages	0.192013	PMM	WDB01	192
227	BOX-150X75X4(2)	Column	No Messages	0.191488	PMM	WDB01	192
229	BOX-150X75X4(2)	Column	No Messages	0.191136	PMM	WDB01	192
231	BOX-150X75X4(2)	Column	No Messages	0.190449	PMM	WDB01	192
233	BOX-150X75X4(2)	Column	No Messages	0.189781	PMM	WDB01	192
235	BOX-150X75X4(2)	Column	No Messages	0.188983	PMM	WDB01	192
237	BOX-150X75X4(2)	Column	No Messages	0.189886	PMM	WDB01	192
239	BOX-150X75X4(2)	Column	No Messages	0.192811	PMM	WDB04	192
280	BOX-100x50x2	Brace	No Messages	0.242686	PMM	W0.6DA01	23.302
282	BOX-100x50x2	Brace	No Messages	0.169247	PMM	W0.6DA01	233.018
308	BOX-100x50x2	Brace	No Messages	0.15774	PMM	W0.6DA03	128.16
310	BOX-100x50x2	Brace	No Messages	0.178317	PMM	W0.6DA01	23.302
336	BOX-100x50x2	Brace	No Messages	0.178033	PMM	W0.6DA01	23.302
338	BOX-100x50x2	Brace	No Messages	0.158928	PMM	W0.6DA03	23.302
364	BOX-100x50x2	Brace	No Messages	0.170622	PMM	W0.6DB04	233.018
366	BOX-100x50x2	Brace	No Messages	0.242847	PMM	W0.6DA01	23.302
420	BOX-100x50x2	Brace	No Messages	0.596459	PMM	W0.6DB01	128.16
422	BOX-100x50x2	Brace	No Messages	0.592598	PMM	W0.6DB01	93.207
448	BOX-100x50x2	Brace	No Messages	0.314605	PMM	W0.6DB01	93.207
450	BOX-100x50x2	Brace	No Messages	0.363221	PMM	W0.6DA01	128.16
476	BOX-100x50x2	Brace	No Messages	0.354238	PMM	W0.6DA03	128.16
478	BOX-100x50x2	Brace	No Messages	0.268944	PMM	W0.6DA03	233.018
504	BOX-100x50x2	Brace	No Messages	0.270043	PMM	W0.6DA03	233.018
506	BOX-100x50x2	Brace	No Messages	0.354394	PMM	W0.6DA03	128.16
532	BOX-100x50x2	Brace	No Messages	0.363619	PMM	W0.6DA01	128.16
534	BOX-100x50x2	Brace	No Messages	0.308418	PMM	W0.6DA03	233.018
588	BOX-100x50x2	Brace	No Messages	0.605684	PMM	W0.6DB01	128.16
590	BOX-100x50x2	Brace	No Messages	0.598187	PMM	W0.6DB01	93.207
616	BOX-100x50x2	Brace	No Messages	0.35061	PMM	W0.6DB04	93.207
618	BOX-100x50x2	Brace	No Messages	0.351042	PMM	W0.6DB04	128.16
644	BOX-100x50x2	Brace	No Messages	0.352808	PMM	W0.6DB04	128.16
646	BOX-100x50x2	Brace	No Messages	0.34384	PMM	W0.6DB04	128.16
672	BOX-100x50x2	Brace	No Messages	0.346277	PMM	W0.6DB04	128.16
674	BOX-100x50x2	Brace	No Messages	0.358186	PMM	W0.6DA01	128.16
700	BOX-100x50x2	Brace	No Messages	0.359631	PMM	W0.6DB04	128.16
702	BOX-100x50x2	Brace	No Messages	0.350429	PMM	W0.6DB04	128.16
728	BOX-100x50x2	Brace	No Messages	0.351762	PMM	W0.6DB04	128.16
730	BOX-100x50x2	Brace	No Messages	0.367335	PMM	W0.6DA01	128.16
756	BOX-100x50x2	Brace	No Messages	0.596745	PMM	W0.6DB01	128.16
758	BOX-100x50x2	Brace	No Messages	0.59711	PMM	W0.6DB01	93.207
784	BOX-100x50x2	Brace	No Messages	0.353635	PMM	W0.6DA03	93.207
786	BOX-100x50x2	Brace	No Messages	0.342484	PMM	W0.6DB04	128.16
812	BOX-100x50x2	Brace	No Messages	0.339134	PMM	W0.6DB04	128.16
814	BOX-100x50x2	Brace	No Messages	0.351509	PMM	W0.6DA01	128.16
840	BOX-100x50x2	Brace	No Messages	0.352502	PMM	W0.6DA01	128.16
842	BOX-100x50x2	Brace	No Messages	0.346132	PMM	W0.6DA03	128.16
868	BOX-100x50x2	Brace	No Messages	0.353712	PMM	W0.6DA01	128.16
870	BOX-100x50x2	Brace	No Messages	0.354249	PMM	W0.6DA03	93.207
896	BOX-100x50x2	Brace	No Messages	0.356365	PMM	W0.6DA01	128.16
898	BOX-100x50x2	Brace	No Messages	0.348971	PMM	W0.6DA03	128.16
924	BOX-100x50x2	Brace	No Messages	0.597074	PMM	W0.6DB01	128.16
926	BOX-100x50x2	Brace	No Messages	0.585998	PMM	W0.6DB01	93.207
952	BOX-100x50x2	Brace	No Messages	0.35299	PMM	W0.6DA01	128.16
954	BOX-100x50x2	Brace	No Messages	0.341543	PMM	W0.6DB04	128.16
980	BOX-100x50x2	Brace	No Messages	0.341167	PMM	W0.6DB04	128.16
982	BOX-100x50x2	Brace	No Messages	0.342949	PMM	W0.6DB04	128.16
1008	BOX-100x50x2	Brace	No Messages	0.347375	PMM	W0.6DA03	128.16
1010	BOX-100x50x2	Brace	No Messages	0.348251	PMM	W0.6DA01	128.16
1036	BOX-100x50x2	Brace	No Messages	0.346789	PMM	W0.6DB04	128.16
1038	BOX-100x50x2	Brace	No Messages	0.354143	PMM	W0.6DA01	128.16
1064	BOX-100x50x2	Brace	No Messages	0.35282	PMM	W0.6DA03	128.16
1066	BOX-100x50x2	Brace	No Messages	0.357404	PMM	W0.6DA01	128.16
1092	BOX-100x50x2	Brace	No Messages	0.597818	PMM	W0.6DB01	128.16
1094	BOX-100x50x2	Brace	No Messages	0.595576	PMM	W0.6DB01	93.207
1120	BOX-100x50x2	Brace	No Messages	0.345237	PMM	W0.6DB04	93.207
1122	BOX-100x50x2	Brace	No Messages	0.345427	PMM	W0.6DB04	128.16
1148	BOX-100x50x2	Brace	No Messages	0.346061	PMM	W0.6DB04	128.16
1150	BOX-100x50x2	Brace	No Messages	0.344109	PMM	W0.6DB04	128.16
1176	BOX-100x50x2	Brace	No Messages	0.343861	PMM	W0.6DB04	128.16
1178	BOX-100x50x2	Brace	No Messages	0.353832	PMM	W0.6DA03	128.16
1204	BOX-100x50x2	Brace	No Messages	0.350326	PMM	W0.6DB04	128.16
1206	BOX-100x50x2	Brace	No Messages	0.352546	PMM	W0.6DA03	128.16
1232	BOX-100x50x2	Brace	No Messages	0.353942	PMM	W0.6DA01	93.207
1234	BOX-100x50x2	Brace	No Messages	0.356211	PMM	W0.6DA03	128.16
1260	BOX-100x50x2	Brace	No Messages	0.600657	PMM	W0.6DB01	128.16
1262	BOX-100x50x2	Brace	No Messages	0.59968	PMM	W0.6DB01	93.207
1288	BOX-100x50x2	Brace	No Messages	0.346992	PMM	W0.6DB04	93.207
1290	BOX-100x50x2	Brace	No Messages	0.360672	PMM	W0.6DA03	128.16
1316	BOX-100x50x2	Brace	No Messages	0.341198	PMM	W0.6DB04	128.16
1318	BOX-100x50x2	Brace	No Messages	0.354711	PMM	W0.6DA03	128.16
1344	BOX-100x50x2	Brace	No Messages	0.355455	PMM	W0.6DA03	128.16
1346	BOX-100x50x2	Brace	No Messages	0.344777	PMM	W0.6DB04	128.16
1372	BOX-100x50x2	Brace	No Messages	0.361143	PMM	W0.6DA03	128.16
1374	BOX-100x50x2	Brace	No Messages	0.346754	PMM	W0.6DB04	128.16
1400	BOX-100x50x2	Brace	No Messages	0.353785	PMM	W0.6DA03	128.16
1402	BOX-100x50x2	Brace	No Messages	0.354166	PMM	W0.6DB04	128.16
1428	BOX-100x50x2	Brace	No Messages	0.592747	PMM	W0.6DB01	128.16
1430	BOX-100x50x2	Brace	No Messages	0.590849	PMM	W0.6DB01	93.207
1456	BOX-100x50x2	Brace	No Messages	0.314222	PMM	W0.6DB01	93.207
1458	BOX-100x50x2	Brace	No Messages	0.317856	PMM	W0.6DB01	128.16
1484	BOX-100x50x2	Brace	No Messages	0.270786	PMM	W0.6DA03	128.16
1486	BOX-100x50x2	Brace	No Messages	0.259795	PMM	W0.6DA03	128.16
1512	BOX-100x50x2	Brace	No Messages	0.259903	PMM	W0.6DA03	128.16
1514	BOX-100x50x2	Brace	No Messages	0.271421	PMM	W0.6DA03	128.16
1540	BOX-100x50x2	Brace	No Messages	0.273183	PMM	W0.6DA03	128.16
1542	BOX-100x50x2	Brace	No Messages	0.274145	PMM	W0.6DB04	23.302
1568	BOX-100x50x2	Brace	No Messages	0.275514	PMM	W0.6DB04	23.302
1570	BOX-100x50x2	Brace	No Messages	0.266688	PMM	W0.6DA03	128.16
1596	BOX-100x50x2	Brace	No Messages	0.29398	PMM	W0.6DB01	128.16
1598	BOX-100x50x2	Brace	No Messages	0.308521	PMM	W0.6DB01	93.207
1624	BOX-100x50x2	Brace	No Messages	0.250357	PMM	W0.6DA03	23.302
1626	BOX-100x50x2	Brace	No Messages	0.174617	PMM	W0.6DB04	233.018
1652	BOX-100x50x2	Brace	No Messages	0.15939	PMM	W0.6DA01	128.16
1654	BOX-100x50x2	Brace	No Messages	0.182824	PMM	W0.6DA03	23.302
1680	BOX-100x50x2	Brace	No Messages	0.182517	PMM	W0.6DA03	23.302
1682	BOX-100x50x2	Brace	No Messages	0.159297	PMM	W0.6DA01	128.16
1708	BOX-100x50x2	Brace	No Messages	0.175805	PMM	W0.6DB04	233.018
1710	BOX-100x50x2	Brace	No Messages	0.250233	PMM	W0.6DA03	23.302
1736	BOX-100x50x2	Brace	No Messages	0.243959	PMM	W0.6DA03	23.302
1738	BOX-100x50x2	Brace	No Messages	0.176069	PMM	W0.6DB04	233.018
1886	BOX-150X75X4(2)	Column	No Messages	0.282282	PMM	WDB02	192
1887	BOX-150X75X4(2)	Column	No Messages	0.28239	PMM	WDB02	192
1888	BOX-150X75X4(2)	Column	No Messages	0.282171	PMM	WDB02	192
1889	BOX-150X75X4(2)	Column	No Messages	0.282644	PMM	WDB02	192
1890	BOX-150X75X4(2)	Column	No Messages	0.283179	PMM	WDB02	192
1891	BOX-150X75X4(2)	Column	No Messages	0.283796	PMM	WDB02	192
1892	BOX-150X75X4(2)	Column	No Messages	0.283857	PMM	WDB02	192
1893	BOX-150X75X4(2)	Column	No Messages	0.282826	PMM	WDB02	192
2142	C-75x45x2.3	Beam	No Messages	0.550517	PMM	WDA04	144
2143	C-75x45x2.3	Beam	No Messages	0.726442	PMM	WDA04	96
2144	C-75x45x2.3	Beam	No Messages	0.711967	PMM	WDA04	144
2145	C-75x45x2.3	Beam	No Messages	0.550504	PMM	WDA04	96
2146	C-75x45x2.3	Beam	No Messages	0.727265	PMM	WDA04	96
2147	C-75x45x2.3	Beam	No Messages	0.717797	PMM	WDA04	144
2148	C-75x45x2.3	Beam	No Messages	0.550505	PMM	WDA04	96
2149	C-75x45x2.3	Beam	No Messages	0.728043	PMM	WDA04	96
2150	C-75x45x2.3	Beam	No Messages	0.722466	PMM	WDA04	96
2151	C-75x45x2.3	Beam	No Messages	0.550516	PMM	WDA04	96
2152	C-75x45x2.3	Beam	No Messages	0.728757	PMM	WDA04	96
2153	C-75x45x2.3	Beam	No Messages	0.725876	PMM	WDA04	96
2154	C-75x45x2.3	Beam	No Messages	0.550513	PMM	WDA04	96
2155	C-75x45x2.3	Beam	No Messages	0.72896	PMM	WDA04	96
2156	C-75x45x2.3	Beam	No Messages	0.728806	PMM	WDA04	96
2157	C-75x45x2.3	Beam	No Messages	0.550516	PMM	WDA04	96
2158	C-75x45x2.3	Beam	No Messages	0.729092	PMM	WDA04	96
2159	C-75x45x2.3	Beam	No Messages	0.730199	PMM	WDA04	96
2160	C-75x45x2.3	Beam	No Messages	0.550516	PMM	WDA04	96
2161	C-75x45x2.3	Beam	No Messages	0.729064	PMM	WDA04	144
2162	C-75x45x2.3	Beam	No Messages	0.73006	PMM	WDA04	144
2163	C-75x45x2.3	Beam	No Messages	0.550509	PMM	WDA04	96
2164	C-75x45x2.3	Beam	No Messages	0.728866	PMM	WDA04	96
2165	C-75x45x2.3	Beam	No Messages	0.728413	PMM	WDA04	144
2166	C-75x45x2.3	Beam	No Messages	0.550509	PMM	WDA04	144
2167	C-75x45x2.3	Beam	No Messages	0.728647	PMM	WDA04	96
2168	C-75x45x2.3	Beam	No Messages	0.725143	PMM	WDA04	96
2169	C-75x45x2.3	Beam	No Messages	0.55049	PMM	WDA04	96
2170	C-75x45x2.3	Beam	No Messages	0.727926	PMM	WDA04	96
2171	C-75x45x2.3	Beam	No Messages	0.72141	PMM	WDA04	144
2172	C-75x45x2.3	Beam	No Messages	0.550528	PMM	WDA04	96
2173	C-75x45x2.3	Beam	No Messages	0.727227	PMM	WDA04	96
2174	C-75x45x2.3	Beam	No Messages	0.716309	PMM	WDA04	144
2175	C-75x45x2.3	Beam	No Messages	0.550504	PMM	WDA04	144
2176	C-75x45x2.3	Beam	No Messages	0.726654	PMM	WDA04	96
2177	C-75x45x2.3	Beam	No Messages	0.709821	PMM	WDA04	96
2178	C-75x45x2.3	Beam	No Messages	0.65999	PMM	W0.6DB03	24
2179	C-75x45x2.3	Beam	No Messages	0.723248	PMM	WDA02	96
2180	C-75x45x2.3	Beam	No Messages	0.711989	PMM	WDA02	144
2181	C-75x45x2.3	Beam	No Messages	0.093595	PMM	W0.6DB03	24
2183	C-75x45x2.3	Beam	No Messages	0.693749	PMM	WDA02	145
2184	C-75x45x2.3	Beam	No Messages	0.081044	PMM	W0.6DB01	24
2186	C-75x45x2.3	Beam	No Messages	0.696736	PMM	WDA02	95
2187	C-75x45x2.3	Beam	No Messages	0.112795	PMM	W0.6DB01	24
2188	C-75x45x2.3	Beam	No Messages	0.724082	PMM	WDA02	96
2189	C-75x45x2.3	Beam	No Messages	0.726022	PMM	WDA02	96
2190	C-75x45x2.3	Beam	No Messages	0.078995	PMM	W0.6DB01	24
2192	C-75x45x2.3	Beam	No Messages	0.700027	PMM	WDA02	95
2193	C-75x45x2.3	Beam	No Messages	0.078793	PMM	W0.6DB01	24
2195	C-75x45x2.3	Beam	No Messages	0.701461	PMM	WDA02	145
2196	C-75x45x2.3	Beam	No Messages	0.079147	PMM	W0.6DB01	24
2198	C-75x45x2.3	Beam	No Messages	0.70143	PMM	WDA02	95
2199	C-75x45x2.3	Beam	No Messages	0.078341	PMM	W0.6DB01	24
2201	C-75x45x2.3	Beam	No Messages	0.7	PMM	WDA02	145
2202	C-75x45x2.3	Beam	No Messages	0.110754	PMM	W0.6DB01	24
2203	C-75x45x2.3	Beam	No Messages	0.724092	PMM	WDA02	96
2204	C-75x45x2.3	Beam	No Messages	0.725895	PMM	WDA02	96
2205	C-75x45x2.3	Beam	No Messages	0.07757	PMM	W0.6DB01	24
2207	C-75x45x2.3	Beam	No Messages	0.696656	PMM	WDA02	145
2208	C-75x45x2.3	Beam	No Messages	0.0788	PMM	W0.6DB01	24
2210	C-75x45x2.3	Beam	No Messages	0.693589	PMM	WDA02	95
2211	C-75x45x2.3	Beam	No Messages	0.11899	PMM	W0.6DB01	24
2212	C-75x45x2.3	Beam	No Messages	0.725281	PMM	WDA02	96
2213	C-75x45x2.3	Beam	No Messages	0.710367	PMM	WDA02	96
2216	C-75x45x2.3	Beam	No Messages	0.003254	Major Shear	W0.6DA02	45
2218	C-75x45x2.3	Beam	No Messages	0.003254	Major Shear	W0.6DA02	45
2219	C-75x45x2.3	Column	No Messages	0.254142	PMM	WDA02	87
2220	C-75x45x2.3	Column	No Messages	0.254088	PMM	WDA02	0
2221	C-75x45x2.3	Column	No Messages	0.254391	PMM	WDA02	87
2222	C-75x45x2.3	Column	No Messages	0.254336	PMM	WDA02	0
2223	C-75x45x2.3	Beam	No Messages	0.003254	Major Shear	W0.6DA02	45
2224	C-75x45x2.3	Beam	No Messages	0.003254	Major Shear	W0.6DA02	45
2225	C-75x45x2.3	Column	No Messages	0.254991	PMM	WDA02	87

2226	C-75x45x2.3	Column	No Messages	0.254936 PMM	WDA02	0
2227	C-75x45x2.3	Column	No Messages	0.254968 PMM	WDA02	87
2228	C-75x45x2.3	Column	No Messages	0.254914 PMM	WDA02	0
2229	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2230	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2231	C-75x45x2.3	Column	No Messages	0.257536 PMM	WDA02	87
2232	C-75x45x2.3	Column	No Messages	0.257482 PMM	WDA02	0
2233	C-75x45x2.3	Column	No Messages	0.257479 PMM	WDA02	87
2234	C-75x45x2.3	Column	No Messages	0.257425 PMM	WDA02	0
2235	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2236	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2237	C-75x45x2.3	Column	No Messages	0.258347 PMM	WDA02	87
2238	C-75x45x2.3	Column	No Messages	0.258293 PMM	WDA02	0
2239	C-75x45x2.3	Column	No Messages	0.258722 PMM	WDA02	87
2240	C-75x45x2.3	Column	No Messages	0.258667 PMM	WDA02	0
2241	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2242	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	0
2243	C-75x45x2.3	Column	No Messages	0.259583 PMM	WDA02	87
2244	C-75x45x2.3	Column	No Messages	0.259528 PMM	WDA02	0
2245	C-75x45x2.3	Column	No Messages	0.260084 PMM	WDA02	87
2246	C-75x45x2.3	Column	No Messages	0.26003 PMM	WDA02	0
2247	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	0
2248	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2249	C-75x45x2.3	Column	No Messages	0.260933 PMM	WDA02	87
2250	C-75x45x2.3	Column	No Messages	0.260878 PMM	WDA02	0
2251	C-75x45x2.3	Column	No Messages	0.261016 PMM	WDA02	87
2252	C-75x45x2.3	Column	No Messages	0.260961 PMM	WDA02	0
2253	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2254	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	0
2255	C-75x45x2.3	Column	No Messages	0.263687 PMM	WDA02	87
2256	C-75x45x2.3	Column	No Messages	0.263633 PMM	WDA02	0
2257	C-75x45x2.3	Column	No Messages	0.263292 PMM	WDA02	87
2258	C-75x45x2.3	Column	No Messages	0.263237 PMM	WDA02	0
2259	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	0
2260	C-75x45x2.3	Beam	No Messages	0.003254 Major Shear	W0.6DA02	45
2261	C-75x45x2.3	Column	No Messages	0.263884 PMM	WDA02	87
2262	C-75x45x2.3	Column	No Messages	0.263829 PMM	WDA02	0
2263	C-75x45x2.3	Column	No Messages	0.263315 PMM	WDA02	87
2264	C-75x45x2.3	Column	No Messages	0.263261 PMM	WDA02	0
2	BOX-100x50x2	Brace	No Messages	0.236587 PMM	W0.6DA01	23.302
19	BOX-100x50x2	Brace	No Messages	0.173365 PMM	W0.6DA01	233.018
30	BOX-100x50x2	Brace	No Messages	0.298562 PMM	W0.6DB04	233.018
41	BOX-100x50x2	Brace	No Messages	0.360743 PMM	W0.6DA03	128.16
72	BOX-100x50x2	Beam	No Messages	0.546596 PMM	W0.6DA01	200
75	BOX-100x50x2	Beam	No Messages	0.486471 PMM	W0.6DA01	200
77	BOX-100x50x2	Beam	No Messages	0.436441 PMM	W0.6DA01	200
79	BOX-100x50x2	Beam	No Messages	0.205707 PMM	W0.6DB04	200
82	BOX-100x50x2	Beam	No Messages	0.309428 PMM	W0.6DB04	200
84	BOX-100x50x2	Beam	No Messages	0.43146 PMM	W0.6DA03	200
86	BOX-100x50x2	Beam	No Messages	0.509794 PMM	W0.6DA03	200
89	BOX-100x50x2	Beam	No Messages	0.586554 PMM	W0.6DA03	200
91	BOX-100x50x2	Beam	No Messages	0.26309 PMM	W0.6DA02	200

32	C-75x45x2.3	Beam	No Messages	0.395444 PMM	WDB02	100
33	C-75x45x2.3	Beam	No Messages	0.395215 PMM	WDB02	100
34	C-75x45x2.3	Beam	No Messages	0.415842 PMM	WDB02	100
35	C-75x45x2.3	Beam	No Messages	0.319147 PMM	WDB02	100
36	C-75x45x2.3	Beam	No Messages	0.397432 PMM	WDB02	100
37	C-75x45x2.3	Beam	No Messages	0.395944 PMM	WDB02	100
38	C-75x45x2.3	Beam	No Messages	0.413025 PMM	WDB02	100
39	C-75x45x2.3	Beam	No Messages	0.320968 PMM	WDB02	100
40	C-75x45x2.3	Beam	No Messages	0.39523 PMM	WDB02	100
42	C-75x45x2.3	Beam	No Messages	0.395482 PMM	WDB02	100
43	C-75x45x2.3	Beam	No Messages	0.415872 PMM	WDB02	100
44	C-75x45x2.3	Beam	No Messages	0.319116 PMM	WDB02	100
45	C-75x45x2.3	Beam	No Messages	0.396808 PMM	WDB02	100
46	C-75x45x2.3	Beam	No Messages	0.395752 PMM	WDB02	100
47	C-75x45x2.3	Beam	No Messages	0.414689 PMM	WDB02	100
48	C-75x45x2.3	Beam	No Messages	0.3208 PMM	WDB02	100
49	C-75x45x2.3	Beam	No Messages	0.395084 PMM	WDB02	100
50	C-75x45x2.3	Beam	No Messages	0.395337 PMM	WDB02	100
51	C-75x45x2.3	Beam	No Messages	0.416404 PMM	WDB02	100
58	C-75x45x2.3	Beam	No Messages	0.319085 PMM	WDB02	100
1069	C-75x45x2.3	Beam	No Messages	0.396655 PMM	WDB02	100
1070	C-75x45x2.3	Beam	No Messages	0.395628 PMM	WDB02	100
1071	C-75x45x2.3	Beam	No Messages	0.414139 PMM	WDB02	100
1072	C-75x45x2.3	Beam	No Messages	0.320663 PMM	WDB02	100
1073	C-75x45x2.3	Beam	No Messages	0.395376 PMM	WDB02	100
1074	C-75x45x2.3	Beam	No Messages	0.395333 PMM	WDB02	100
1075	C-75x45x2.3	Beam	No Messages	0.41462 PMM	WDB02	100
1076	C-75x45x2.3	Beam	No Messages	0.31908 PMM	WDB02	100
1093	C-75x45x2.3	Beam	No Messages	0.396004 PMM	WDB02	100
1095	C-75x45x2.3	Beam	No Messages	0.395262 PMM	WDB02	100
1097	C-75x45x2.3	Beam	No Messages	0.414212 PMM	WDB02	100
1098	C-75x45x2.3	Beam	No Messages	0.320466 PMM	WDB02	100
1099	C-75x45x2.3	Beam	No Messages	0.395158 PMM	WDB02	100
1100	C-75x45x2.3	Beam	No Messages	0.394867 PMM	WDB02	100
1101	C-75x45x2.3	Beam	No Messages	0.413962 PMM	WDB02	100
1102	C-75x45x2.3	Beam	No Messages	0.319088 PMM	WDB02	100
1103	C-75x45x2.3	Beam	No Messages	0.395048 PMM	WDB02	100
1104	C-75x45x2.3	Beam	No Messages	0.394442 PMM	WDB02	100
1121	C-75x45x2.3	Beam	No Messages	0.412629 PMM	WDB02	100
1123	C-75x45x2.3	Beam	No Messages	0.320377 PMM	WDB02	100
1125	C-75x45x2.3	Beam	No Messages	0.394467 PMM	WDB02	100
1126	C-75x45x2.3	Beam	No Messages	0.394105 PMM	WDB02	100
1127	C-75x45x2.3	Beam	No Messages	0.411557 PMM	WDB02	100
1128	C-75x45x2.3	Beam	No Messages	0.239409 PMM	WDB04	100
1129	C-75x45x2.3	Beam	No Messages	0.2929 PMM	WDB04	100
1130	C-75x45x2.3	Beam	No Messages	0.292687 PMM	WDB04	100
1131	C-75x45x2.3	Beam	No Messages	0.304743 PMM	WDB04	100
1132	C-75x45x2.3	Beam	No Messages	0.23957 PMM	WDB04	100
1149	C-75x45x2.3	Beam	No Messages	0.292974 PMM	WDB04	100
1151	C-75x45x2.3	Beam	No Messages	0.292705 PMM	WDB04	100
1153	C-75x45x2.3	Beam	No Messages	0.304668 PMM	WDB04	100
1154	C-75x45x2.3	Beam	No Messages	0.239009 PMM	WDB04	100

93	BOX-100x50x2	Beam	No Messages	0.14285 PMM	W0.6DA03	200
96	BOX-100x50x2	Beam	No Messages	0.135678 PMM	W0.6DA01	200
98	BOX-100x50x2	Beam	No Messages	0.125416 PMM	W0.6DA03	200
100	BOX-100x50x2	Beam	No Messages	0.12101 PMM	W0.6DA01	200
103	BOX-100x50x2	Beam	No Messages	0.125499 PMM	W0.6DA01	200
105	BOX-100x50x2	Beam	No Messages	0.132612 PMM	W0.6DA01	200
107	BOX-100x50x2	Beam	No Messages	0.279027 PMM	W0.6DA04	200
110	BOX-100x50x2	Beam	No Messages	0.40044 PMM	W0.6DA01	200
112	BOX-100x50x2	Beam	No Messages	0.192746 PMM	W0.6DA01	200
114	BOX-100x50x2	Beam	No Messages	0.177961 PMM	W0.6DB04	200
123	BOX-100x50x2	Beam	No Messages	0.145282 PMM	W0.6DB04	200
124	BOX-100x50x2	Beam	No Messages	0.161957 PMM	W0.6DB04	200
125	BOX-100x50x2	Beam	No Messages	0.152111 PMM	W0.6DB04	200
126	BOX-100x50x2	Beam	No Messages	0.213687 PMM	W0.6DB04	200
127	BOX-100x50x2	Beam	No Messages	0.433706 PMM	W0.6DA03	200
128	BOX-100x50x2	Beam	No Messages	0.25856 PMM	W0.6DA02	200
129	BOX-100x50x2	Beam	No Messages	0.141778 PMM	W0.6DA03	200
130	BOX-100x50x2	Beam	No Messages	0.130827 PMM	W0.6DA01	200
131	BOX-100x50x2	Beam	No Messages	0.124944 PMM	W0.6DB04	200
132	BOX-100x50x2	Beam	No Messages	0.123224 PMM	W0.6DB04	200
133	BOX-100x50x2	Beam	No Messages	0.127626 PMM	W0.6DB04	200
134	BOX-100x50x2	Beam	No Messages	0.131079 PMM	W0.6DA01	200
135	BOX-100x50x2	Beam	No Messages	0.273061 PMM	W0.6DA04	200
136	BOX-100x50x2	Beam	No Messages	0.542881 PMM	W0.6DA01	200
137	BOX-100x50x2	Beam	No Messages	0.491232 PMM	W0.6DA01	200
138	BOX-100x50x2	Beam	No Messages	0.440498 PMM	W0.6DA01	200
139	BOX-100x50x2	Beam	No Messages	0.211379 PMM	W0.6DB04	200
140	BOX-100x50x2	Beam	No Messages	0.319151 PMM	W0.6DB04	200
141	BOX-100x50x2	Beam	No Messages	0.43617 PMM	W0.6DA03	200
142	BOX-100x50x2	Beam	No Messages	0.514654 PMM	W0.6DA03	200
143	BOX-100x50x2	Beam	No Messages	0.58333 PMM	W0.6DA03	200
3	C-75x45x2.3	Beam	No Messages	0.320007 PMM	WDB02	100
4	C-75x45x2.3	Beam	No Messages	0.394826 PMM	WDB02	100
11	C-75x45x2.3	Beam	No Messages	0.394011 PMM	WDB02	100
12	C-75x45x2.3	Beam	No Messages	0.412919 PMM	WDB02	100
13	C-75x45x2.3	Beam	No Messages	0.318973 PMM	WDB02	100
14	C-75x45x2.3	Beam	No Messages	0.395736 PMM	WDB02	100
15	C-75x45x2.3	Beam	No Messages	0.394121 PMM	WDB02	100
16	C-75x45x2.3	Beam	No Messages	0.416893 PMM	WDB02	100
17	C-75x45x2.3	Beam	No Messages	0.319742 PMM	WDB02	100
18	C-75x45x2.3	Beam	No Messages	0.394205 PMM	WDB02	100
20	C-75x45x2.3	Beam	No Messages	0.394845 PMM	WDB02	100
21	C-75x45x2.3	Beam	No Messages	0.414022 PMM	WDB02	100
22	C-75x45x2.3	Beam	No Messages	0.319901 PMM	WDB02	100
23	C-75x45x2.3	Beam	No Messages	0.395291 PMM	WDB02	100
24	C-75x45x2.3	Beam	No Messages	0.394355 PMM	WDB02	100
25	C-75x45x2.3	Beam	No Messages	0.418553 PMM	WDB02	100
26	C-75x45x2.3	Beam	No Messages	0.319306 PMM	WDB02	100
27	C-75x45x2.3	Beam	No Messages	0.398263 PMM	WDB02	100
28	C-75x45x2.3	Beam	No Messages	0.395887 PMM	WDB02	100
29	C-75x45x2.3	Beam	No Messages	0.411516 PMM	WDB02	100
31	C-75x45x2.3	Beam	No Messages	0.320999 PMM	WDB02	100

1155	C-75x45x2.3	Beam	No Messages	0.292936 PMM	WDB04	100
1156	C-75x45x2.3	Beam	No Messages	0.29271 PMM	WDB04	100
1157	C-75x45x2.3	Beam	No Messages	0.305935 PMM	WDB04	100
1158	C-75x45x2.3	Beam	No Messages	0.239014 PMM	WDB04	100
1159	C-75x45x2.3	Beam	No Messages	0.293012 PMM	WDB04	100
1160	C-75x45x2.3	Beam	No Messages	0.293089 PMM	WDB04	100
1177	C-75x45x2.3	Beam	No Messages	0.306501 PMM	WDB04	100
1179	C-75x45x2.3	Beam	No Messages	0.2405 PMM	WDB04	100
1181	C-75x45x2.3	Beam	No Messages	0.293545 PMM	WDB04	100
1182	C-75x45x2.3	Beam	No Messages	0.292757 PMM	WDB04	100
1183	C-75x45x2.3	Beam	No Messages	0.305401 PMM	WDB04	100
1184	C-75x45x2.3	Beam	No Messages	0.240601 PMM	WDB04	100
1185	C-75x45x2.3	Beam	No Messages	0.293452 PMM	WDB04	100
1186	C-75x45x2.3	Beam	No Messages	0.292805 PMM	WDB04	100
1187	C-75x45x2.3	Beam	No Messages	0.305468 PMM	WDB04	100
1188	C-75x45x2.3	Beam	No Messages	0.239504 PMM	WDB04	100
1205	C-75x45x2.3	Beam	No Messages	0.292886 PMM	WDB04	100
1207	C-75x45x2.3	Beam	No Messages	0.293348 PMM	WDB04	100
1209	C-75x45x2.3	Beam	No Messages	0.306919 PMM	WDB04	100
1210	C-75x45x2.3	Beam	No Messages	0.23958 PMM	WDB04	100
1211	C-75x45x2.3	Beam	No Messages	0.29277 PMM	WDB04	100
1212	C-75x45x2.3	Beam	No Messages	0.293161 PMM	WDB04	100
1213	C-75x45x2.3	Beam	No Messages	0.306478 PMM	WDB04	100
1214	C-75x45x2.3	Beam	No Messages	0.240475 PMM	WDB04	100
1215	C-75x45x2.3	Beam	No Messages	0.293343 PMM	WDB04	100
1216	C-75x45x2.3	Beam	No Messages	0.292905 PMM	WDB04	100
1233	C-75x45x2.3	Beam	No Messages	0.305758 PMM	WDB04	100
1235	C-75x45x2.3	Beam	No Messages	0.239866 PMM	WDB04	100
1237	C-75x45x2.3	Beam	No Messages	0.293226 PMM	WDB04	100
1238	C-75x45x2.3	Beam	No Messages	0.292623 PMM	WDB04	100
1239	C-75x45x2.3	Beam	No Messages	0.304927 PMM	WDB04	100
1240	C-75x45x2.3	Beam	No Messages	0.239353 PMM	WDB04	100
1241	C-75x45x2.3	Beam	No Messages	0.29278 PMM	WDB04	100
1242	C-75x45x2.3	Beam	No Messages	0.293505 PMM	WDB04	100
1243	C-75x45x2.3	Beam	No Messages	0.306873 PMM	WDB04	100
1244	C-75x45x2.3	Beam	No Messages	0.239703 PMM	WDB04	100
1261	C-75x45x2.3	Beam	No Messages	0.292633 PMM	WDB04	100
1263	C-75x45x2.3	Beam	No Messages	0.293257 PMM	WDB04	100
1265	C-75x45x2.3	Beam	No Messages	0.305761 PMM	WDB04	100
1266	C-75x45x2.3	Beam	No Messages	0.240231 PMM	WDB04	100
1267	C-75x45x2.3	Beam	No Messages	0.29323 PMM	WDB04	100
1268	C-75x45x2.3	Beam	No Messages	0.293522 PMM	WDB04	100
1269	C-75x45x2.3	Beam	No Messages	0.30549 PMM	WDB04	100
1270	C-75x45x2.3	Beam	No Messages	0.238698 PMM	WDB04	100
1271	C-75x45x2.3	Beam	No Messages	0.29322 PMM	WDB04	100
1272	C-75x45x2.3	Beam	No Messages	0.292911 PMM	WDB04	100
1289	C-75x45x2.3	Beam	No Messages	0.306156 PMM	WDB04	100
1291	C-75x45x2.3	Beam	No Messages	0.240846 PMM	WDB04	100
1293	C-75x45x2.3	Beam	No Messages	0.293414 PMM	WDB04	100
1294	C-75x45x2.3	Beam	No Messages	0.293404 PMM	WDB04	100
1295	C-75x45x2.3	Beam	No Messages	0.306012 PMM	WDB04	100
1296	C-75x45x2.3	Beam	No Messages	0.239898 PMM	WDB04	100

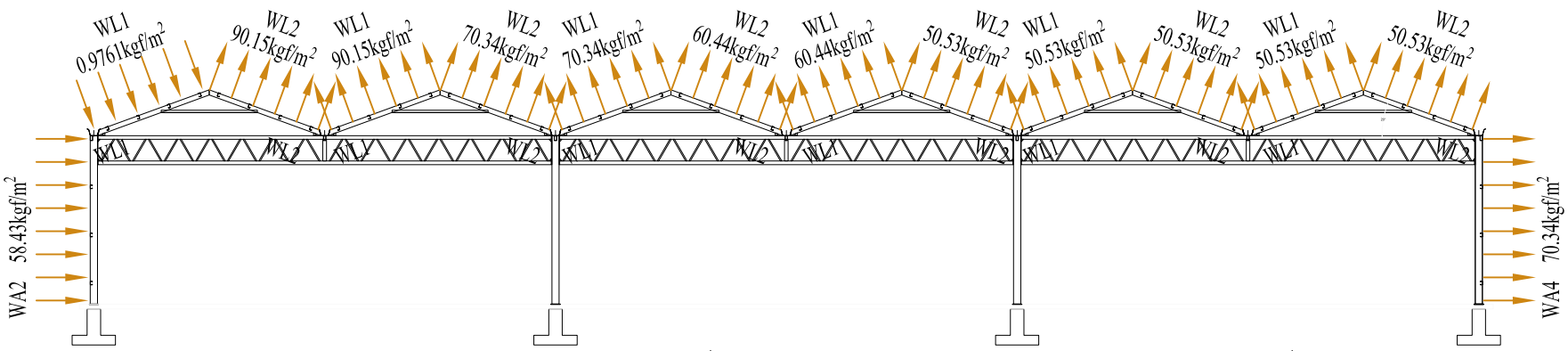
1297	C-75x45x2.3	Beam	No Messages	0.293087 PMM	WDB04	100
1298	C-75x45x2.3	Beam	No Messages	0.292567 PMM	WDB04	100
1299	C-75x45x2.3	Beam	No Messages	0.305683 PMM	WDB04	100
503	BOX-150x75x4	Column	No Messages	0.295164 PMM	W0.6DB01	350
559	BOX-150x75x4	Column	No Messages	0.227367 PMM	W0.6DA02	0
1317	BOX-150x75x4	Column	No Messages	0.238887 PMM	W0.6DA02	0
1321	BOX-150x75x4	Column	No Messages	0.2271 PMM	W0.6DA02	0
1323	BOX-150x75x4	Column	No Messages	0.232355 PMM	W0.6DA02	0
1325	BOX-150x75x4	Column	No Messages	0.213712 PMM	W0.6DA02	0
1327	BOX-150x75x4	Column	No Messages	0.277293 PMM	WDB01	42
1345	BOX-75X150X4	Column	No Messages	0.535669 PMM	W0.6DB04	0
1349	BOX-75X150X4	Column	No Messages	0.293974 PMM	W0.6DB01	0
1351	BOX-75X150X4	Column	No Messages	0.332774 PMM	W0.6DB04	350
1353	BOX-75X150X4	Column	No Messages	0.390971 PMM	W0.6DA01	297
1355	BOX-75X150X4	Column	No Messages	0.578735 PMM	W0.6DB04	0
1373	BOX-75X150X4	Column	No Messages	0.29584 PMM	W0.6DB01	0
1377	BOX-75X150X4	Column	No Messages	0.386974 PMM	W0.6DB04	350
1379	BOX-75X150X4	Column	No Messages	0.398548 PMM	W0.6DA01	297
1381	BOX-75X150X4	Column	No Messages	0.594336 PMM	W0.6DB04	0
1383	BOX-75X150X4	Column	No Messages	0.299413 PMM	W0.6DB01	0
1401	BOX-75X150X4	Column	No Messages	0.397992 PMM	W0.6DB04	350
1405	BOX-75X150X4	Column	No Messages	0.407041 PMM	W0.6DA03	297
1407	BOX-75X150X4	Column	No Messages	0.595131 PMM	W0.6DB04	0
1409	BOX-75X150X4	Column	No Messages	0.308259 PMM	W0.6DB01	0
1411	BOX-75X150X4	Column	No Messages	0.402797 PMM	W0.6DB04	350
1429	BOX-75X150X4	Column	No Messages	0.4065 PMM	W0.6DA01	297
1433	BOX-75X150X4	Column	No Messages	0.593073 PMM	W0.6DB04	0
1435	BOX-75X150X4	Column	No Messages	0.315618 PMM	W0.6DB01	0
1437	BOX-75X150X4	Column	No Messages	0.399023 PMM	W0.6DB04	350
1439	BOX-75X150X4	Column	No Messages	0.402008 PMM	W0.6DA03	297
1457	BOX-75X150X4	Column	No Messages	0.588432 PMM	W0.6DB04	0
1461	BOX-75X150X4	Column	No Messages	0.301099 PMM	W0.6DB01	0
1463	BOX-75X150X4	Column	No Messages	0.39366 PMM	W0.6DB04	350
1465	BOX-75X150X4	Column	No Messages	0.404163 PMM	W0.6DA01	297
1467	BOX-75X150X4	Column	No Messages	0.540196 PMM	W0.6DB04	0
1485	BOX-75X150X4	Column	No Messages	0.316589 PMM	W0.6DB01	0
1489	BOX-75X150X4	Column	No Messages	0.35015 PMM	W0.6DB04	350
1491	BOX-75X150X4	Column	No Messages	0.345687 PMM	W0.6DA03	297
1493	BOX-150x75x4	Column	No Messages	0.333658 PMM	WDB03	0
1495	BOX-150x75x4	Column	No Messages	0.36597 PMM	W0.6DA04	0
1513	BOX-150x75x4	Column	No Messages	0.35853 PMM	W0.6DA04	0
1517	BOX-150x75x4	Column	No Messages	0.362861 PMM	W0.6DA04	0
1519	BOX-150x75x4	Column	No Messages	0.348855 PMM	W0.6DA04	0
1521	BOX-150x75x4	Column	No Messages	0.345522 PMM	W0.6DA04	0
1523	BOX-150x75x4	Column	No Messages	0.323563 PMM	WDB01	0
1	SB1-COMB BEAM	Beam	No Messages	0.412193 PMM	W0.6DA02	239.999
5	SB1-COMB BEAM	Beam	No Messages	0.551414 PMM	W0.6DA02	240.001
6	SB1-COMB BEAM	Beam	No Messages	0.545248 PMM	W0.6DA02	0
7	SB1-COMB BEAM	Beam	No Messages	0.511653 PMM	W0.6DA02	240.001
8	SB1-COMB BEAM	Beam	No Messages	0.536203 PMM	W0.6DA02	0
9	SB1-COMB BEAM	Beam	No Messages	0.536026 PMM	W0.6DA02	240.001
10	SB1-COMB BEAM	Beam	No Messages	0.537712 PMM	W0.6DA02	0

67	SB1-COMB BEAM	Beam	No Messages	0.538615 PMM	W0.6DA02	240.001
69	SB1-COMB BEAM	Beam	No Messages	0.515776 PMM	W0.6DA02	0
71	SB1-COMB BEAM	Beam	No Messages	0.553346 PMM	W0.6DA02	240.001
73	SB1-COMB BEAM	Beam	No Messages	0.564802 PMM	W0.6DA02	0
74	SB1-COMB BEAM	Beam	No Messages	0.425741 PMM	W0.6DA02	0
97	SB1-COMB BEAM	Beam	No Messages	0.927264 PMM	W0.6DB04	480
99	SB1-COMB BEAM	Beam	No Messages	0.881941 PMM	W0.6DB04	0
101	SB1-COMB BEAM	Beam	No Messages	0.814501 PMM	W0.6DB04	0
102	SB1-COMB BEAM	Beam	No Messages	0.770359 PMM	W0.6DA03	480
104	SB1-COMB BEAM	Beam	No Messages	0.816285 PMM	W0.6DB04	0
106	SB1-COMB BEAM	Beam	No Messages	0.858459 PMM	W0.6DA03	0
117	SB1-COMB BEAM	Beam	No Messages	0.948472 PMM	W0.6DB04	480
119	SB1-COMB BEAM	Beam	No Messages	0.899613 PMM	W0.6DB04	0
120	SB1-COMB BEAM	Beam	No Messages	0.856819 PMM	W0.6DA01	480
121	SB1-COMB BEAM	Beam	No Messages	0.913696 PMM	W0.6DA01	480
122	SB1-COMB BEAM	Beam	No Messages	0.880793 PMM	W0.6DA03	0
755	SB1-COMB BEAM	Beam	No Messages	0.93954 PMM	W0.6DB04	0
783	SB1-COMB BEAM	Beam	No Messages	0.899848 PMM	W0.6DA03	480
1091	SB1-COMB BEAM	Beam	No Messages	0.943862 PMM	W0.6DB04	0
1119	SB1-COMB BEAM	Beam	No Messages	0.903814 PMM	W0.6DA01	480
1147	SB1-COMB BEAM	Beam	No Messages	0.935866 PMM	W0.6DA01	480
1175	SB1-COMB BEAM	Beam	No Messages	0.910476 PMM	W0.6DA03	0
1324	SB1-COMB BEAM	Beam	No Messages	0.924431 PMM	W0.6DB04	0
1326	SB1-COMB BEAM	Beam	No Messages	0.883856 PMM	W0.6DA03	480
1328	SB1-COMB BEAM	Beam	No Messages	0.936821 PMM	W0.6DA03	480
1380	SB1-COMB BEAM	Beam	No Messages	0.933982 PMM	W0.6DB04	0
1382	SB1-COMB BEAM	Beam	No Messages	0.902091 PMM	W0.6DA01	480
1384	SB1-COMB BEAM	Beam	No Messages	0.948969 PMM	W0.6DA01	480
1399	SB1-COMB BEAM	Beam	No Messages	0.920075 PMM	W0.6DA03	0
1431	SB1-COMB BEAM	Beam	No Messages	0.881595 PMM	W0.6DB04	480
1434	SB1-COMB BEAM	Beam	No Messages	0.837706 PMM	W0.6DB04	0
1436	SB1-COMB BEAM	Beam	No Messages	0.791788 PMM	W0.6DB04	0
1438	SB1-COMB BEAM	Beam	No Messages	0.739127 PMM	W0.6DA03	480
1440	SB1-COMB BEAM	Beam	No Messages	0.78292 PMM	W0.6DA03	480
1455	SB1-COMB BEAM	Beam	No Messages	0.810554 PMM	W0.6DA03	0
1487	SB1-COMB BEAM	Beam	No Messages	0.423743 PMM	W0.6DA04	239.999
1490	SB1-COMB BEAM	Beam	No Messages	0.562851 PMM	W0.6DA04	240.001
1492	SB1-COMB BEAM	Beam	No Messages	0.556677 PMM	W0.6DA04	0
1494	SB1-COMB BEAM	Beam	No Messages	0.518191 PMM	W0.6DA04	240.001
1496	SB1-COMB BEAM	Beam	No Messages	0.541134 PMM	W0.6DA04	0
1511	SB1-COMB BEAM	Beam	No Messages	0.539158 PMM	W0.6DA04	240.001
1515	SB1-COMB BEAM	Beam	No Messages	0.540541 PMM	W0.6DA04	0
1518	SB1-COMB BEAM	Beam	No Messages	0.543216 PMM	W0.6DA04	240.001
1520	SB1-COMB BEAM	Beam	No Messages	0.521813 PMM	W0.6DA04	0
1522	SB1-COMB BEAM	Beam	No Messages	0.563802 PMM	W0.6DA04	240.001
1524	SB1-COMB BEAM	Beam	No Messages	0.575429 PMM	W0.6DA04	0
1539	SB1-COMB BEAM	Beam	No Messages	0.436299 PMM	W0.6DA04	0

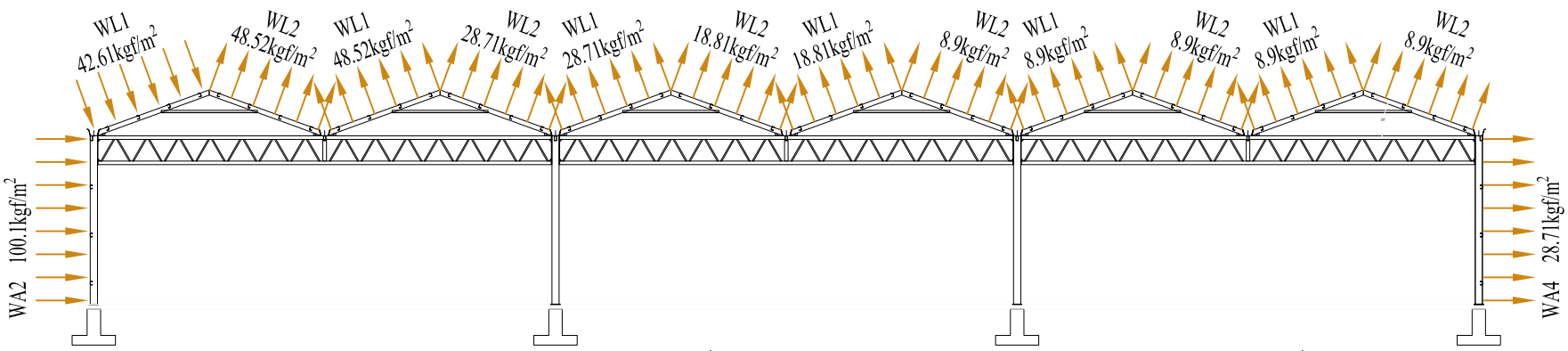
附件3 內力及外力輸出

名稱	方向性	WA1	WA2	WA3	WA4	WL1	WL2	風力組合
WCASEA1	X(內壓為正)	-58.73		68.32		90.41	90.41	WCASEA1=WA1+WA3+WL1+WL2
WCASEA2	X(內壓為負)	-100.4		26.69		48.78	48.78	WCASEA2=WA1+WA3+WL1+WL2
WCASEB1	Y(內壓為正)		-58.43		70.34	依風力計算結果	依風力計算結果	WCASEB1=WA2+WA4+WL1+WL2
WCASEB2	Y(內壓為負)		-100.1		28.71	依風力計算結果	依風力計算結果	WCASEB2=WA2+WA4+WL1+WL2

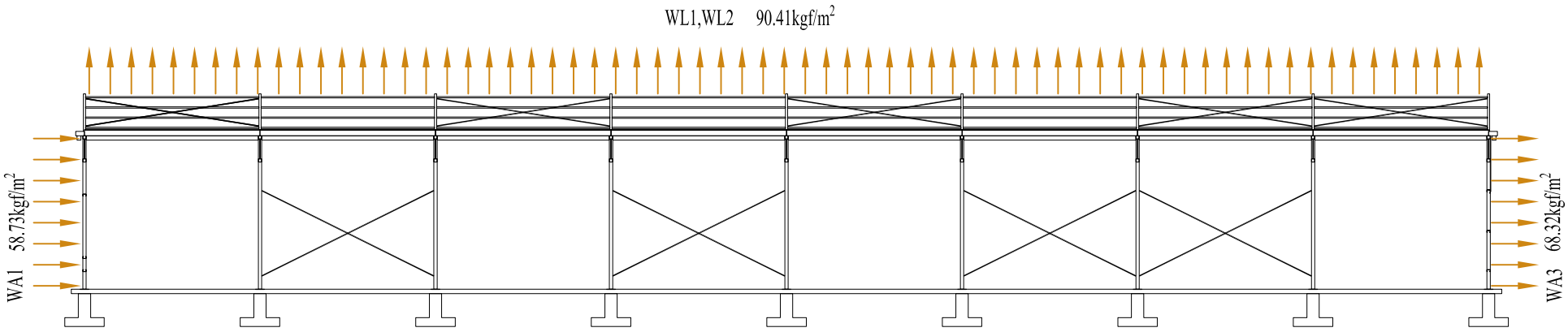
WA1為1-LINE風壓、WA2為A-LINE風壓、WA3為9-LINE風壓、WA4為M-LINE風壓，WL1及WL2則為屋頂風壓



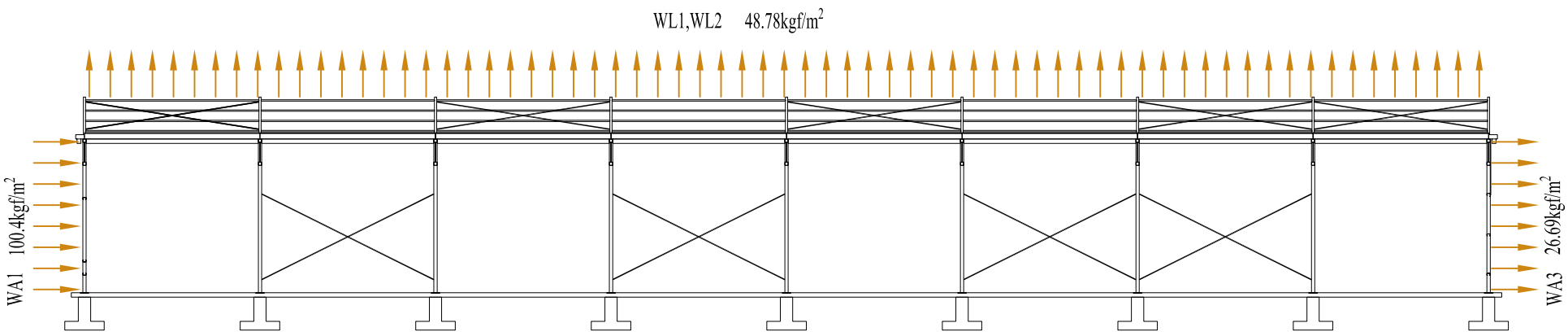
橫向構架風力示意圖一(內壓為正— WACASEB1)



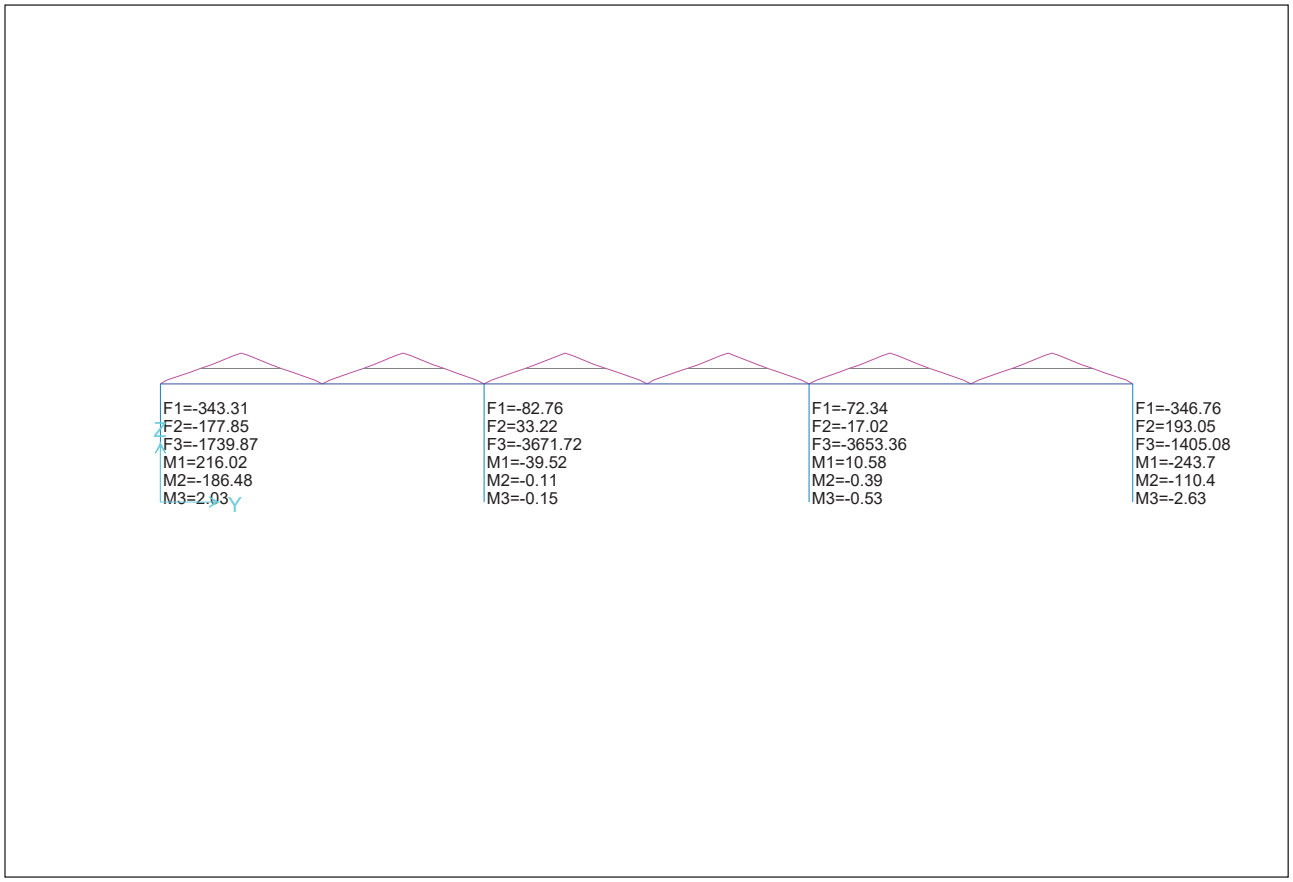
橫向構架風力示意圖二(內壓為負— WACASEB2)



縱向構架風力示意圖一(內壓為正— WACASEA1)

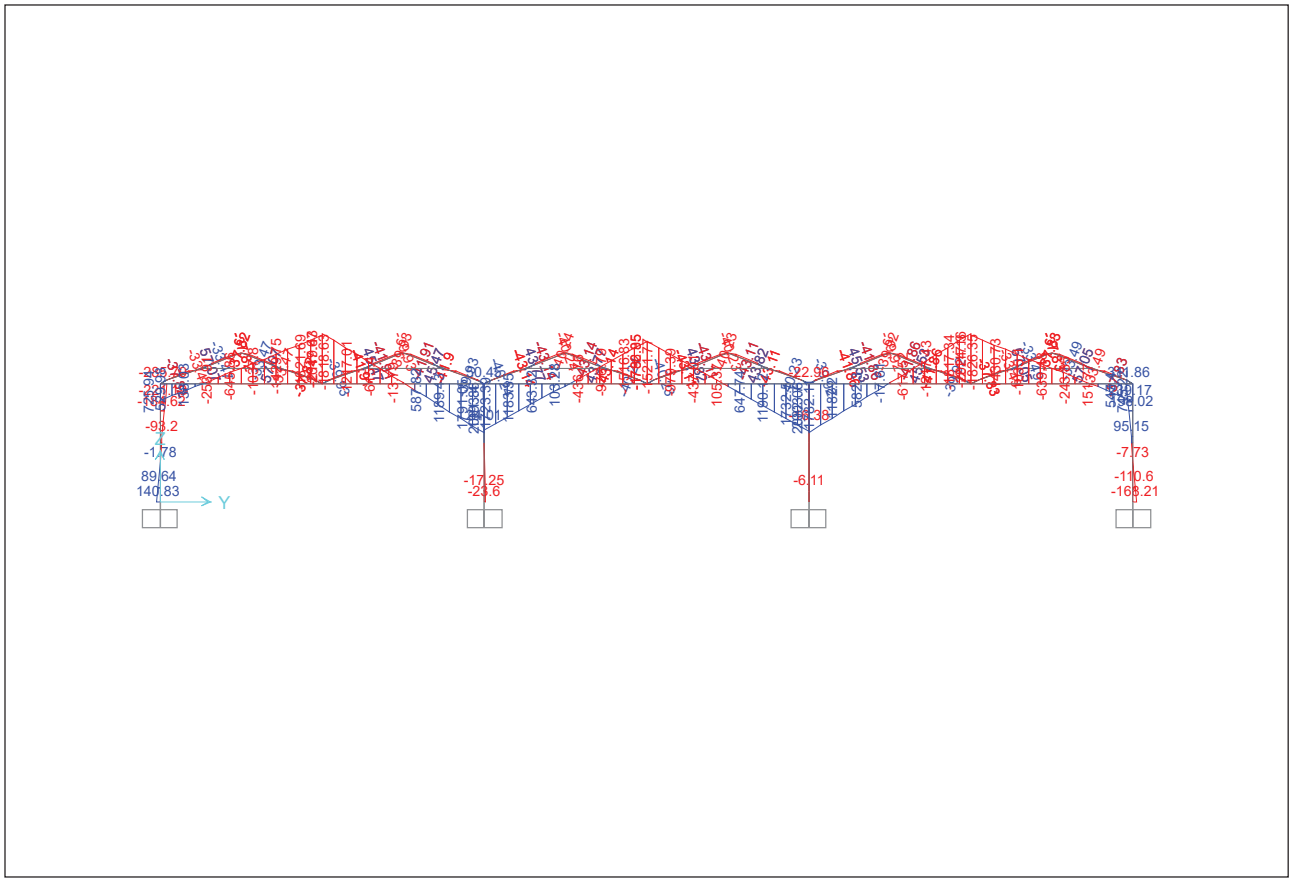


縱向構架風力示意圖一(內壓為負— WACASEA2)



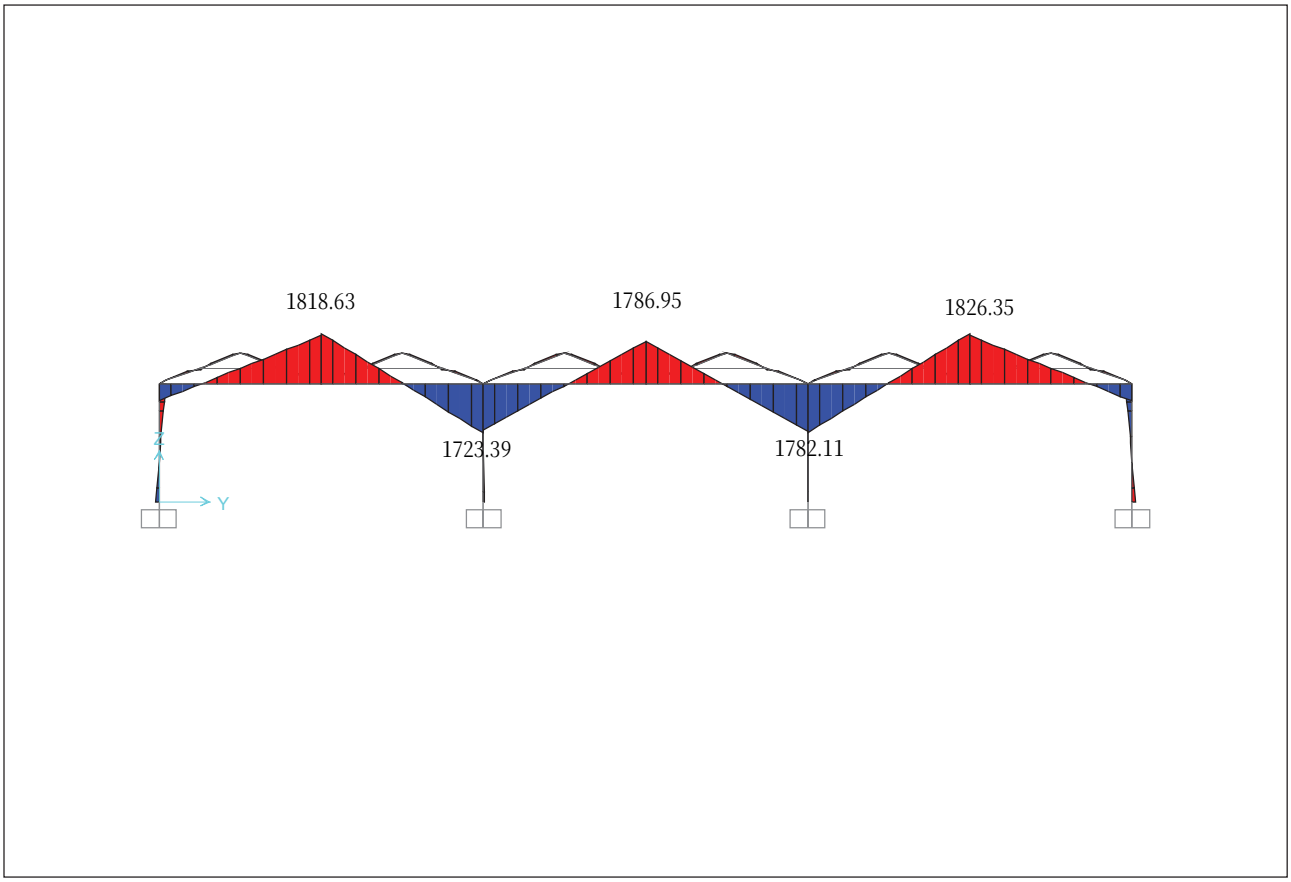
Joint Reactions (WACASEA1)

Kgf, m, C



Moment 3-3 Diagram (WACASEA1)

Kgf, m, C

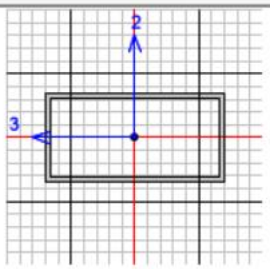


Moment 3-3 Diagram (WACASEA1) Kgf, m, C

Steel Stress Check Data AISC360-05/IBC2006

File

Units Kgf, cm, C



AISC360-05/IBC2006 STEEL SECTION CHECK (Summary for Combo and Station)
Units : Kgf, cm, C

Frame : 503	X Mid: 0.	Combo: W0.6DB04	Design Type: Column	
Length: 350.	Y Mid: 0.	Shape: BOX-150x75x4	Frame Type: SMF	
Loc : 350.	Z Mid: 175.	Class: Non-Compact	Princpl Rot: 90. degrees	

Provision: ASD	Analysis: Direct Analysis			
D/C Limit=0.95	2nd Order: General 2nd Order		Reduction: Tau-b Fixed	
AlphaPr/Py=0.018	AlphaPr/Pe=0.002	Tau_b=1.	EA factor=0.8	EI factor=0.8

OmegaB=1.67	OmegaC=1.67	OmegaTY=1.67	OmegaTF=2.	
OmegaV=1.67	OmegaV-RI=1.5	OmegaVT=1.67		

A=17.36	I33=171.441	r33=3.143	S33=45.718	Av3=12.
J=396.144	I22=510.706	r22=5.424	S22=68.094	Av2=6.
Ixy=0.	Imax=510.706	rmax=5.424	Smax=68.094	
Rot= 90. deg	Imin=171.441	rmin=3.143	Smin=45.718	
E=2040000.	Fy=2520.	Ry=1.587	z33=51.578	
RLLF=1.	Fu=4592.		z22=84.128	

HSS Welding: ERW Reduce HSS Thickness? No

STRESS CHECK FORCES & MOMENTS (Combo W0.6DB04)

Location	Pr	Mr33	Mr22	Vr2	Vr3	Tr
350.	505.618	49.791	-33594.445	2.832	195.787	-65.763

PMM DEMAND/CAPACITY RATIO (H1.2,H1-1b)

D/C Ratio: 0.275 = 0.01 + 0. + 0.265
= (1/2)(Pr/Pc) + (Mr33/Mc33) + (Mr22/Mc22)

AXIAL FORCE & BIAXIAL MOMENT DESIGN (H1.2,H1-1b)

Factor	L	K1	K2	B1	B2	Cm
Major Bending	0.237	1.	1.	1.	1.	1.
Minor Bending	0.377	1.	1.	1.	1.	1.

	Lltb	Kltb	Cb
LTB	0.377	1.	1.851

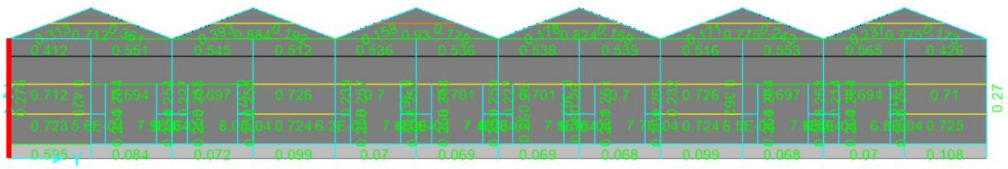
	Pr Force	Pnc/Omega Capacity	Pnt/Omega Capacity
Axial	505.618	25255.918	26195.928

	Mr Moment	Mn/Omega Capacity	Mn/Omega No LTB
Major Moment	49.791	73812.56	73812.56
Minor Moment	-33594.445	126947.641	

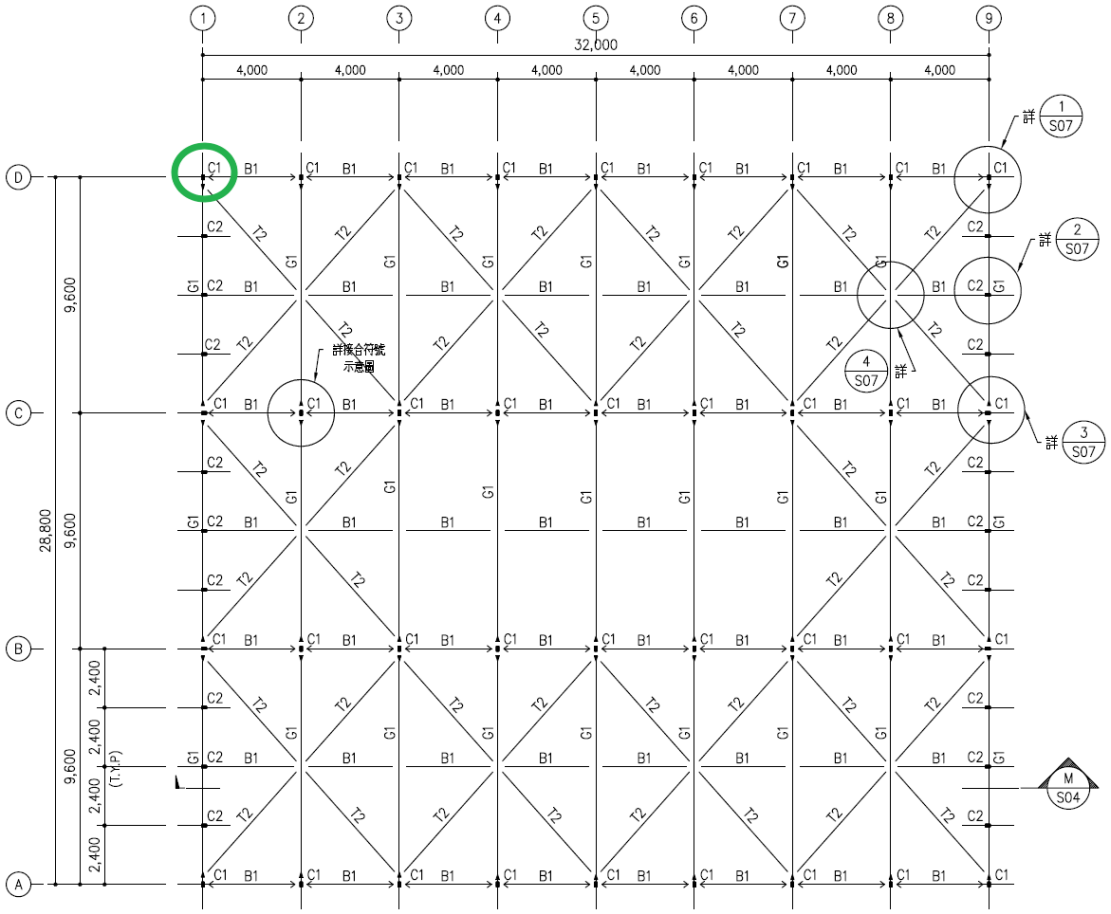
	Tr Moment	Tn Capacity	Tn/Omega Capacity
Torsion	-65.763	125013.337	74858.286

SHEAR CHECK

	Vr Force	Vn/Omega Capacity	Stress Ratio	Status Check
Major Shear	2.832	4563.162	0.001	OK
Minor Shear	195.787	9995.497	0.02	OK



山牆立柱應力比計算(1-LINE)



檢討風力WACASEA1

TABLE: Joint Reactions								
Joint	OutputCase	CaseType	F1	F2	F3	M1	M2	M3
Text	Text	Text	Kgf	Kgf	Kgf	Kgf-m	Kgf-m	Kgf-m
1	WACASEA1	Combinat	-274.5	-15.47	-436.24	-1.02	-158.28	16.38
9	WACASEA1	Combinat	-164.61	-4.37	-924.55	0.52	-235.71	-1.45
11	WACASEA1	Combinat	-178.83	-5.41	-567.77	0.63	-232.64	1.64
13	WACASEA1	Combinat	-164.78	-7.54	-801.61	0.89	-229.93	0.17
15	WACASEA1	Combinat	-179.01	-9.47	-568.41	1.12	-223.55	-1.32
17	WACASEA1	Combinat	-164.66	-10.66	-922.61	1.25	-217.75	1.97
19	WACASEA1	Combinat	-240.32	-50.45	-840.99	-2.65	-87.49	-22.42
133	WACASEA1	Combinat	-331.33	-121.89	-1778.2	140.83	-180.15	1.92
137	WACASEA1	Combinat	-82.67	21.16	-3645.1	-23.6	-0.19	-0.38
141	WACASEA1	Combinat	-72.51	-5.27	-3628	-4.53	-0.45	-0.31
145	WACASEA1	Combinat	-335.38	137.16	-1454.3	-168.21	-107.43	-2.63
147	WACASEA1	Combinat	-360.42	-162.29	-1531.6	189.81	-195.8	1.26
151	WACASEA1	Combinat	-61.81	33.85	-3451.5	-32.7	10.64	-0.15
155	WACASEA1	Combinat	-51.26	-23.79	-3469.6	15.1	10.42	-0.49
159	WACASEA1	Combinat	-242.87	171.53	-1232.6	-206.55	-82.37	-1.8
161	WACASEA1	Combinat	-385.59	-169.89	-1232.2	195.09	-198.27	0.8
165	WACASEA1	Combinat	-82.17	36.5	-3834	-35.08	0.01078	0.03341
169	WACASEA1	Combinat	-71.16	-34.15	-3809.9	31.14	-0.13	-0.7
173	WACASEA1	Combinat	-251.58	172.17	-1892.5	-199.13	-83.69	-1.36
175	WACASEA1	Combinat	-379.96	-173.64	-1911.6	206.63	-196.48	0.42
179	WACASEA1	Combinat	-62.69	32.43	-3514.4	-26.86	10.34	0.16
183	WACASEA1	Combinat	-52.34	-32.14	-3537.1	26.49	9.97	-0.83
187	WACASEA1	Combinat	-237.82	174.47	-1213.8	-207.4	-79.9	-0.98
189	WACASEA1	Combinat	-375.14	-169.77	-1174.9	198.77	-194.28	0.1
193	WACASEA1	Combinat	-59.23	29.73	-3750.5	-24.22	5.22	0.29
197	WACASEA1	Combinat	-55.93	-36.97	-3730.5	37.24	3.25	-0.95
201	WACASEA1	Combinat	-256.19	163.28	-1888.2	-186.74	-84.92	-0.66
203	WACASEA1	Combinat	-360.76	-174.79	-2001	212.05	-190.26	-0.45
207	WACASEA1	Combinat	-190.24	20.6	-3696.9	-10.82	-17.22	0.44
211	WACASEA1	Combinat	-164.54	-30.66	-3701.8	28.8	-14.57	-1.1
215	WACASEA1	Combinat	-247.14	166.05	-1241.9	-195.33	-83.34	-0.13
217	WACASEA1	Combinat	-340.79	-134.36	-1044.5	166.39	-181.63	-1.06
221	WACASEA1	Combinat	19.88	6.71	-3200.5	4.49	31.17	0.55
225	WACASEA1	Combinat	23.4	-25.38	-3213.3	28.66	29.31	-1.21
229	WACASEA1	Combinat	-266.4	116.68	-1798.2	-134.36	-89.61	0.44
231	WACASEA1	Combinat	-330.88	-4.37	-400.03	22.49	-168.19	44.58
233	WACASEA1	Combinat	-386.58	-2.18	-1114.9	7.75	-323.63	-4.85
235	WACASEA1	Combinat	-395.22	-3.22	-692.74	8	-351.18	1.1
237	WACASEA1	Combinat	-391.69	-4.64	-975.94	8.26	-340	-0.27
239	WACASEA1	Combinat	-392.16	-6.09	-691.43	8.52	-340.32	-1.68
241	WACASEA1	Combinat	-380.26	-7.25	-1117.5	8.8	-301.3	4.75
243	WACASEA1	Combinat	-295.43	-23.3	13.34	26.59	-94.67	-48.19
313	WACASEA1	Combinat	-176.39	-3.53	54.94	0.44	-372.72	0.22

側向力檢核				
	高	長	面風壓	側向力
WA1	3.75	28.8	100.4	10843.2
WA2	3.75	28.8	26.69	2882.52
				13725.72

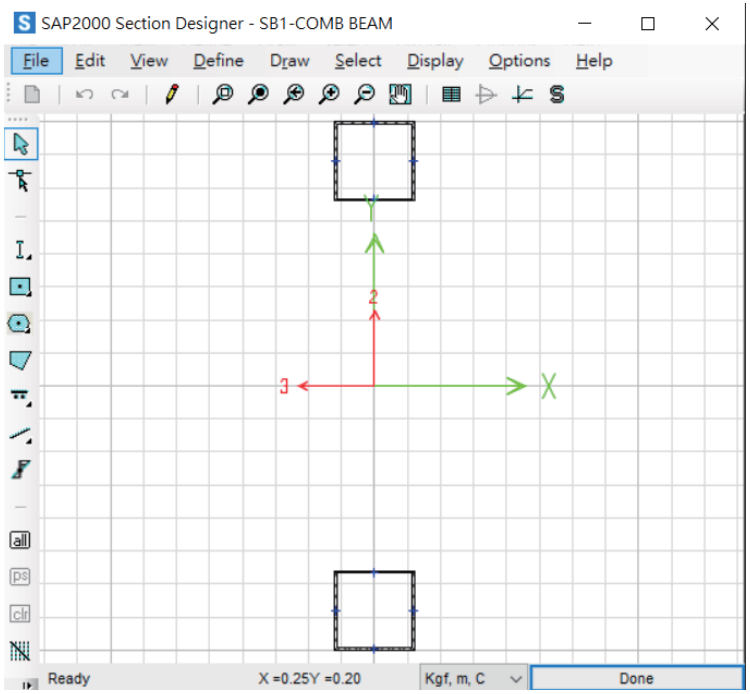
SAP2000分析所得基座側向力為12897.8 kgf。
經計算側向風力為13725.72 kgf。
兩者計算結果數值相當。

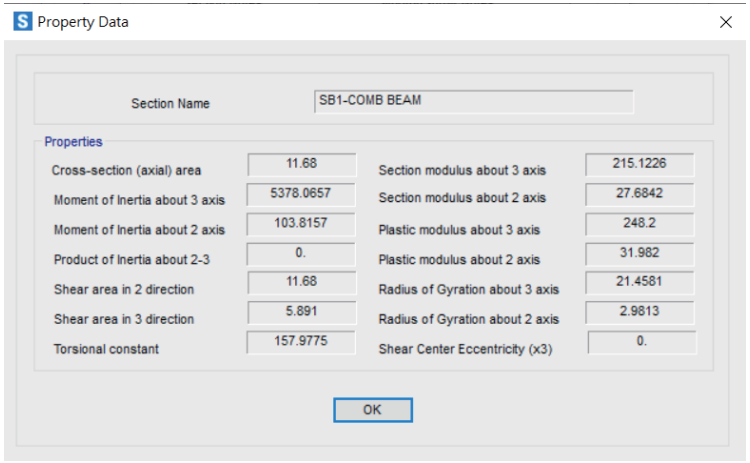
315	WACASEA1	Combinat	-173.84	-5.73	-99.5	0.66	-328.32	-1.17
317	WACASEA1	Combinat	-159.73	-6.69	-71.78	0.79	-320.37	1
319	WACASEA1	Combinat	-159.79	-8.41	-71.03	0.98	-316.72	-0.49
321	WACASEA1	Combinat	-173.73	-9.14	-100.67	1.09	-316.89	1.68
323	WACASEA1	Combinat	-174.55	-10.25	71.43	1.24	-353.85	0.28
325	WACASEA1	Combinat	-441.48	-1.76	39.35	7.66	-525.74	-8.71
327	WACASEA1	Combinat	-420.7	-2.62	-117.61	7.87	-464.11	3.57
329	WACASEA1	Combinat	-426.2	-3.91	-118.47	8.13	-480.68	-1.18
331	WACASEA1	Combinat	-424.91	-5.38	-119.13	8.38	-476.25	0.27
333	WACASEA1	Combinat	-416.63	-6.74	-115.79	8.66	-450.28	-4.51
335	WACASEA1	Combinat	-432.87	-7.77	23.8	8.93	-503.13	7.38
337	WACASEA1	Combinat	127.05	-1.41	-25.86	0	0	0
353	WACASEA1	Combinat	-22.86	1.55	-25.85	0	0	0
355	WACASEA1	Combinat	-27.42	2.04	-26.26	0	0	0
357	WACASEA1	Combinat	-19.6	2.2	-26.41	0	0	0
359	WACASEA1	Combinat	-20.07	2.07	-26.41	0	0	0
361	WACASEA1	Combinat	-20.49	2.08	-26.4	0	0	0
363	WACASEA1	Combinat	-20.5	1.97	-26.43	0	0	0
365	WACASEA1	Combinat	-19.6	1.32	-26.38	0	0	0
367	WACASEA1	Combinat	-19.91	-0.64	-25.65	0	0	0
1525	WACASEA1	Combinat	-123.94	-1.95	-26.47	0	0	0
1526	WACASEA1	Combinat	-121.16	-2.15	-26.29	0	0	0
1527	WACASEA1	Combinat	-115.08	-2.04	-26.43	0	0	0
1528	WACASEA1	Combinat	-115.06	-2.1	-26.41	0	0	0
1529	WACASEA1	Combinat	-116.2	-2.01	-26.45	0	0	0
1530	WACASEA1	Combinat	-116.92	-1.41	-26.39	0	0	0
1531	WACASEA1	Combinat	-114.04	0.48	-25.54	0	0	0
			-12897.8					

附件4 力霸型大梁檢討

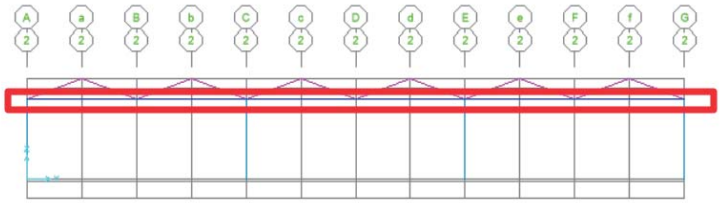
力霸型大梁桿件模擬方式

力霸型大梁於 SAP2000 中採用 Section Designer 建置。





斷面性質圖



力霸型大梁採線元素模擬

力霸形大梁應力比計算

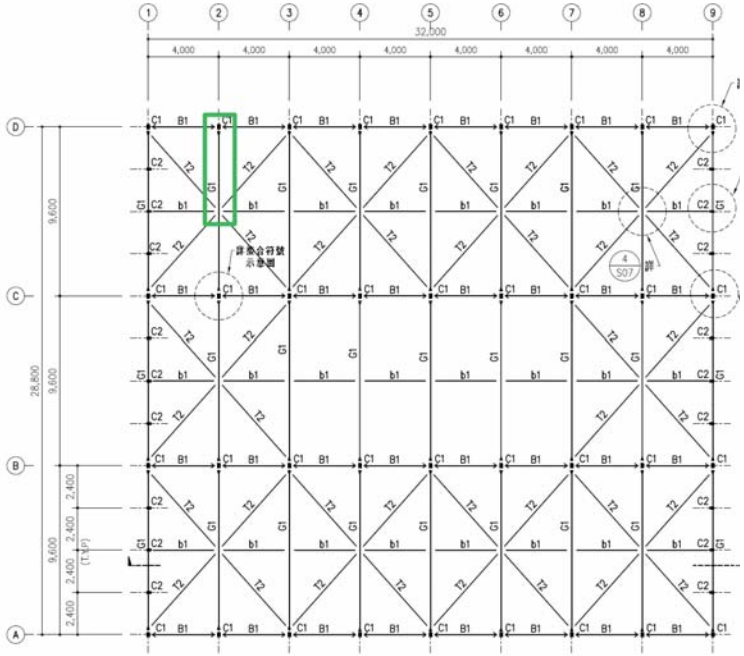
Steel Stress Check Data AISC360-05/IBC2006

File

Units Kgf, cm, C

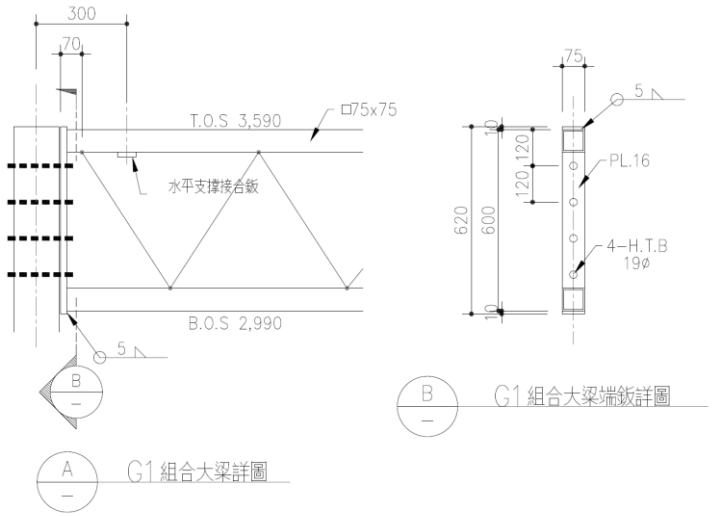
```
AISC360-05/IBC2006 STEEL SECTION CHECK     (Summary for Combo and Station)
Units  :  Kgf, cm, C

Frame :  97       X Mid:  400.      Combo:  W0.6DB04        Design Type:  Beam
Length:  480.     Y Mid:  240.      Shape:  SB1-COMB BEAM   Frame Type:  SMF
Loc   :  480.     Z Mid:  350.      Class:  Non-Compact     Princpl Rot: 0. degrees

Provision: ASD    Analysis: Direct Analysis
D/C Limit=0.95    2nd Order: General 2nd Order        Reduction: Tau-b Fixed
AlphaPr/Py=0.1    AlphaPr/Pe=0.324  Tau_b=1.         EA factor=0.8     EI factor=0.8

OmegaB=1.67       OmegaC=1.67       OmegaTY=1.67      OmegaTF=2.
OmegaV=1.67       OmegaV-RI=1.5     OmegaVT=1.67

A=11.68           I33=5378.066      r33=21.458        S33=215.123       Av3=5.891
J=157.978         I22=103.816       r22=2.981         S22=27.684        Av2=11.68
E=2040000.        Fy=2520.          Ry=1.587          z33=248.2
RLLF=1.           Fu=4592.                            z22=31.982


STRESS CHECK FORCES & MOMENTS (Combo W0.6DB04)
    Location          Pr        Mr33        Mr22        Vr2         Vr3          Tr
    480.         -1836.679  -196095.26    -224.999    544.245       0.668     -41.229

PMM DEMAND/CAPACITY RATIO   (H1-1a)
    D/C Ratio:     0.927 = 0.386 + 0.537 + 0.005
                         = (Pr/Pc) + (8/9)(Mr33/Mc33) + (8/9)(Mr22/Mc22)

AXIAL FORCE & BIAXIAL MOMENT DESIGN   (H1-1a)
    Factor              L          K1          K2          B1          B2          Cm
    Major Bending       1.          1.          1.          1.          1.          1.
    Minor Bending       1.          1.          1.          1.          1.        0.43

                      Lltb        Kltb          Cb
    LTB                 1.          1.       2.107

                        Pr   Pnc/Omega   Pnt/Omega
                     Force    Capacity    Capacity
    Axial       -1836.679    4764.241    17624.91

                        Mr    Mn/Omega    Mn/Omega
                    Moment    Capacity      No LTB
    Major Moment -196095.26  324616.183  324616.183
    Minor Moment   -224.999   41774.954

SHEAR CHECK
                                          Vr    Vn/Omega      Stress      Status
                                       Force    Capacity       Ratio       Check
    Major Shear      544.245   10574.946         0.051          OK
    Minor Shear        0.668    5333.628            0.          OK

CONNECTION SHEAR FORCES FOR BEAMS
                     VMajor      VMajor
                       Left       Right
    Major (V2)      517.842     544.245
```

力霸形大梁應力比計算



大梁接頭螺栓檢核

	P	V2	V3	T	M2	M3
	Tonf	Tonf	Tonf	Tonf-cm	Tonf-cm	Tonf-cm
W0.6DB03	3.535	-0.2456	-0.0006849	-0.03	-0.009409	45.184
W0.6DB04	-1.8308	0.5214	0.0006988	-0.033	0.105	60.119
W0.6DB04	-1.1101	1.0707	0.00021	0.012	-0.047	-255.829
W0.6DB03	-1.1101	-1.0707	-0.0002106	-0.016	-0.047	-255.828
WDA02	-0.1627	0.11	0.5658	0.34	53.429	19.781
WDA01	-0.2258	-0.1282	-0.56	-0.402	-51.596	-22.429
W0.6DA01	0.6809	0.3989	-0.3712	11.054	-66.298	13.02
W0.6DA02	0.298	-0.3707	0.3407	-10.958	59.228	-12.121
WDA04	-0.8232	-0.3722	0.5286	-7.726	93.185	-12.01
W0.6DA03	0.8574	0.3713	-0.5211	6.742	-93.159	11.912
W0.6DB04	-1.0133	1.0382	-0.0006403	0.011	-0.145	251.953
W0.6DB04	-1.1101	1.0707	0.00021	0.012	-0.047	-255.829



螺栓　　彎矩　256 tf*cm　　單顆螺栓拉力為 255.829/30=8.53 tf

採用 19Ø 螺栓

螺栓面積　3.14159　cm2

螺栓剪應力　fv=　0.113605　tf/cm2　<　容許剪應力 Fv=1.48 tf/cm2 (ok)

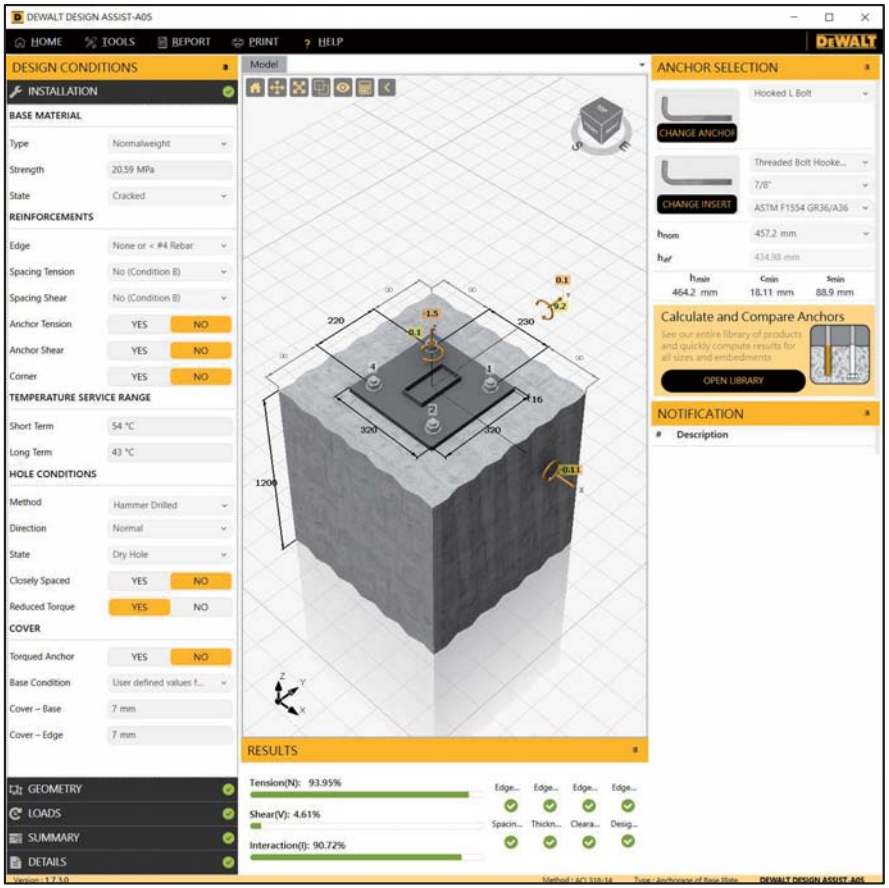
螺栓容許拉應力 Ft =　3.09　tf/cm2

=>　單顆螺栓拉力 8.53 tf　<　容許拉力 T = 9.71 tf (ok)

附件5 細部設計資料

基座錨栓檢核

	F1	F2	F3	M1	M2	M3
	Tonf	Tonf	Tonf	Tonf-m	Tonf-m	Tonf-m
LR-0.9D+1.3WA04	0.7674	0.0079	-0.3307	-0.01422	0.66661	0.00067
LR-1.2D+1.0L+1.3WA02	-0.7589	0.0103	-0.0209	-0.01477	-0.63968	0.00492
LR-0.9D+1.3WA03	0.3928	0.2668	-2.1946	-0.32963	0.12467	0.00268
LR-0.9D+1.3WB02	-0.0017	-0.8934	-0.8462	0.93761	-0.0009	0.00005128
LR-1.2D+1.0L+1.3WB01	0.0027	-0.3521	5.1858	0.56721	0.00022	-0.00056
LR-0.9D+1.3WB04	-0.002	-0.3182	-4.431	0.52894	-0.00015	-0.00039
LR-0.9D+1.3WB04	-0.0023	-0.827	-1.7725	0.97868	-0.001	0.00019
LR-0.9D+1.3WA03	0.3768	0.2643	-1.108	-0.3297	0.11979	0.00218
LR-0.9D+1.3WA04	0.765	0.0126	-0.4238	-0.01542	0.66917	0.02357
LR-1.2D+1.0L+1.3WA02	-0.7589	0.0103	-0.0209	-0.01477	-0.6397	0.00492
LR-0.9D+1.3WA04	0.4986	0.0056	-0.8014	-0.03822	0.15249	0.13756
LR-0.9D+1.3WA02	-0.5148	0.0121	-0.7089	-0.04324	-0.15895	-0.1393



5-2

DEWALT DESIGN ASSIST 1.7.3.0 Page 1

A05

2025/3/7

1.Project Information

Company:
Project Engineer:
Address:
Phone: M: P:
Email: tsmhwthz@hotmail.com
Project Name: Untitled
Project Address: Untitled
Notes:

2.Selected Anchor Information

Selected Anchor : Hooked L Bolt
Brand: Generic
Material: 7/8" Ø Threaded Bolt Hooked Head ASTM F1554 GR36/A36
Embedment: h_{ef} 434.98 mm h_{nom} 457.2 mm
Approval: - -
Issued/Revision: - -

3.Design Principles

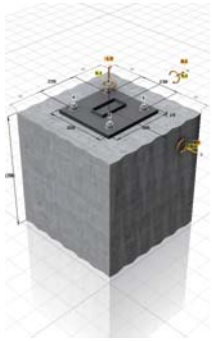
Design Method: ACI 318-14
Load Combinations: Section 5.3 User Defined Loads

4.Base Material Information

Concrete:
Type: Cracked Normal Weight Concrete
Strength 20.59 MPa
Reinforcement:
Edge Reinforcement None or < #4 Rebar
Spacing Tension No (Condition B) Shear No (Condition B)
Controls Breakout Tension False Shear False
Base Plate:
Sizing Thickness 19 mm Length 320 mm Width 320 mm
Standoff None Height 0 mm
Strength 248 (N/mm²)
Profile: HSS Rectangular 152.4 X 76.2 X 3.2
Torqued Anchor Bolt:
Concrete Covers: Base Cover: 7 mm End Cover: 7 mm

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

5.Geometric Conditions



h_{slab}	1200	mm	h_{min}	464.200	mm
Edge Cx-	∞	mm	c_{min}	18.113	mm
Edge Cx+	∞	mm	c_{ac}	652.463	mm
Edge Cy-	∞	mm	s_{min}	88.900	mm
Edge Cy+	∞	mm			

6.Summary Results

Tension Loading

Design Proof	Demand(kN)	Capacity(kN)	Utilization	Status	Critical
Steel Strength:	18.06	89.34	0.202	OK	
Concrete Breakout Strength:	35.94	361.18	0.099	OK	
Pullout Strength:	18.06	19.22	0.940	OK	Controls

Shear Loading

Design Proof	Demand(kN)	Capacity(kN)	Utilization	Status	Critical
Steel Strength	2.14	46.46	0.046	OK	Controls
Concrete Breakout Strength:	0.00	0.00	0.000	OK	
Pryout Strength	8.11	842.79	0.010	OK	

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

7.Warnings and Remarks

ANCHOR DESIGN CRITERIA IS SATISFIED

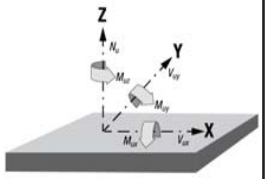
- The results of the calculations carried out by means of the DDA Software are based essentially on the data you put in. Therefore, you bear the sole responsibility for the absence of errors, the completeness and the relevance of the data to be put in by you. Moreover, you bear sole responsibility for having the results of the calculation checked and cleared by an design professional/engineer, particularly with regard to compliance with applicable standards, norms and permits, prior to using them for your specific project. The DDA Software serves only as an aid to interpret standards, norms and permits without any guarantee as to the absence of errors, the correctness and the relevance of the results or suitability for a specific application.
- Verification of a sufficiently stiff base plate in respect to base plate deformations is not performed by the DDA Software, this check should be done by a design professional/engineer outside of the DDA Software. The DDA base plate thickness analysis is based on a proof of stresses, the base plate is assumed to not deform under load actions.

8.Load Condition

Design Loads / Actions

Nu	-1.5	kN	Vux	8.1	kN	Vuy	0.1	kN
Muz	0.1	kNm	Mux	-0.1	kNm	Muy	9.2	kNm

Consider Load Reversal X Direction 0% Y Direction 0%



Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

9.Load Distribution

Max. concrete compressive strain:	0.108	%	Anchor Eccentricity				
Max. concrete compressive stress:	3.229	(N/mm²)	ex	0	mm	ey	0 mm
Resulting tension force:	35.936	kN	Profile Eccentricity				
Resulting compression force:	37.435	kN	ex	0	mm	ey	0 mm

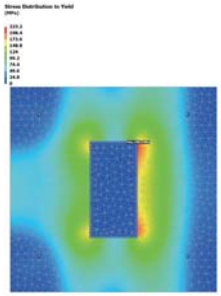
Resulting anchor forces / Load distribution

Anchor	Tension Load (kN)	Shear Load (kN)	Component Shear Load (kN) Shear X	Shear Y	Anchor Coordinates (mm) X	Y
1	0.00	1.9	1.9	0.1	115.000	110.000
2	0.00	2.1	2.1	0.1	115.000	-110.000
3	17.88	1.9	1.9	-0.1	-115.000	110.000
4	18.06	2.1	2.1	-0.1	-115.000	-110.000

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

10.Base Plate Analysis

Stress Distribution



Details

Material		A36	
Yield Stress	f_y	248	MPa
Elastic Modulus	E	199948	MPa
Poisson's Ratio	ν	0.27	
Safety Factor	γ	0.9	
Profile Type		HSS Rectangular	152.4 X 76.2 X 3.2
Max Stress	Σ	206.3	MPa
Base Plate Thickness	t_p	19	mm

Base Plate Utilization

$\Sigma / (f_y * \gamma)$		92.4%	

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

11.Design Proof Tension Loading

Steel Strength

ACI 318-14 17.4.1

Variables

N_{sa} (kN)	φ
119.126	0.75

Results

φN_{sa}	=	89.3	kN
N_{ua}	=	18.1	kN
Utilization	=	20.2%	

Table 17.3.1.1

Concrete Breakout Strength

ACI 318-14 17.4.2

Equations

$N_{cbg} = (A_{Nc} / A_{Nc0}) . \Psi_{ec,N} . \Psi_{ed,N} . \Psi_{c,N} . \Psi_{cp,N} . N_b$ Eqn. 17.4.2.1b

$N_b = 3.9 . \lambda_a . (f'_c)^{0.5} . h_{ef}^{5/3}$ Eqn. 17.4.2.2b

Variables

A_{Nc} (mm²)	A_{Nc0} (mm²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$
1989913.000	1702829.000	0.999	1.000	1.000	1.000

c_{ac} (mm)	k_c	λ_a	f'_c (MPa)	h_{ef} (mm)
652.463	10.000	1.000	20.59	434.98

N_b (kN)	φ
441.910	0.70

Results

φN_{cbg}	=	361.18	kN
N_{ua}	=	35.9	kN
Utilization	=	9.9%	

Table 17.3.1.1

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

Pullout Strength:

ACI 318-14 17.4.3

Equations

$N_{pn} = \Psi_{c,P} . N_p$ Eqn. 17.4.3.1

$N_p = 0.9 . f'_c . e_h . d_a$ Eqn. 17.4.3.5

Variables

$\Psi_{c,P}$	$N_{p,cr}$ (kN)	e_h	f'_c (MPa)	φ
1.000	27.460	66.68	21	0.70

Results

φN_{pn}	=	19.22	kN
N_{ua}	=	18.06	kN
Utilization	=	94.0%	

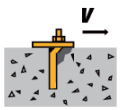
Table 17.3.1.1

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

12.Design Proof Shear Loading

Reference

Steel Strength



ACI 318-14 17.5.1

Variables

V_{sa} (kN)	φ
71.48	0.65

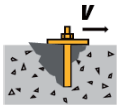
Results

φV_{sa}	=	46.46	kN
V_{ua}	=	2.14	kN
Utilization	=	4.6%	

Table 17.3.1.1

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

Pryout Strength



ACI 318-14 17.5.3

Equations

$V_{cpg} = k_{cp} \cdot N_{cpg}$ Eqn. 17.5.3.1b

$N_{cbg} = (A_{Nc} / A_{Nc0}) \cdot \Psi_{ec,N} \cdot \Psi_{ed,N} \cdot \Psi_{c,N} \cdot \Psi_{cp,N} \cdot N_b$ Eqn. 17.4.2.1b

$N_b = k_c \cdot \lambda_a \cdot (f'_c)^{0.5} \cdot h_{ef}^{1.5}$ Eqn. 17.4.2.2a

Variables

A_{Nc} (mm²)	A_{Nc0} (mm²)	$\Psi_{ec,N}$	$\Psi_{ed,N}$	$\Psi_{c,N}$	$\Psi_{cp,N}$
2340645.506	1702829.256	0.991	1.000	1.000	1.000

c_{ac} (mm)	k_c	λ_a	h_{ef} (mm)	f'_c (MPa)
652.463	10.000	1.000	434.98	20.590

N_b (kN)	k_{cp}	N_{cpg} (kN)	φ
441.909	2.000	601.990	0.70

Results

φV_{cpg}	=	842.79	kN
V_{ua}	=	8.11	kN
Utilization	=	1.0%	

Table 17.3.1.1

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

13.Interaction of Tension and Shear Loads

Reference

ACI 318-14 17.6

Equations

$$(N_{ua} / \varphi \cdot N_n)^{5/3} + (V_{ua} / \varphi \cdot V_n)^{5/3} <= 1.0$$ Eqn. 17.6.3

Variables

$N_{ua} / \varphi \cdot N_n$	$V_{ua} / \varphi \cdot V_n$
0.940	0.046

Results

0.907	≤	1.0
Status	:	OK

ANCHOR DESIGN CRITERIA IS SATISFIED

Input data and results must be checked for agreement with the existing conditions, the standards and guidelines and must be checked for plausibility

基礎檢核

	F1	F2	F3	M1	M2	M3
	Tonf	Tonf	Tonf	Tonf-m	Tonf-m	Tonf-m
LR-0.9D+1.3WA04	0.7674	0.0079	-0.3307	-0.01422	0.66661	0.00067
LR-1.2D+1.0L+1.3WA02	-0.7589	0.0103	-0.0209	-0.01477	-0.63968	0.00492
LR-0.9D+1.3WA03	0.3928	0.2668	-2.1946	-0.32963	0.12467	0.00268
LR-0.9D+1.3WB02	-0.0017	-0.8934	-0.8462	0.93761	-0.0009	0.00005128
LR-1.2D+1.0L+1.3WB01	0.0027	-0.3521	5.1858	0.56721	0.00022	-0.00056
LR-0.9D+1.3WB04	-0.002	-0.3182	-4.431	0.52894	-0.00015	-0.00039
LR-0.9D+1.3WB04	**-0.0023**	**-0.827**	**-1.7725**	**0.97868**	**-0.001**	**0.00019**
LR-0.9D+1.3WA03	0.3768	0.2643	-1.108	-0.3297	0.11979	0.00218
LR-0.9D+1.3WA04	0.765	0.0126	-0.4238	-0.01542	0.66917	0.02357
LR-1.2D+1.0L+1.3WA02	-0.7589	0.0103	-0.0209	-0.01477	-0.6397	0.00492
LR-0.9D+1.3WA04	0.4986	0.0056	-0.8014	-0.03822	0.15249	0.13756
LR-0.9D+1.3WA02	-0.5148	0.0121	-0.7089	-0.04324	-0.15895	-0.1393

基礎設計

一、設計載重(工作載重)

軸壓力(+)	P	1.77 t	
彎矩	M	0.98 t-m	
假設土壤承載力	Fp 或 Fu	5.00 t/m2	極限用 Fu
牆底土壤磨擦角	δ	12.50 °	1/2-2/3 φ

二、假設基礎基本規格 (無偏心基礎)

寬度	B	1.50 m	剪力方向長度
長度	L	1.50 m	
版厚度	T	0.35 m	
基礎深度	H	1.10 m	
RC 柱頭寬度	B1	0.35 m	B 方向柱頭寬
RC 柱頭長度	L1	0.35 m	L 方向柱頭寬
fc'		210.00 kg/cm2	
fy		2800.00 kg/cm2	

三、版底應力分析假設

3.3 土壤承載力分析

ΣM=Md	0.98 t-m	
e=ΣM/Pr	0.15 m	
x=B/2-e	0.60 m	
B/6	0.25 m	
e < B/6	OK	
Fmax=Pr/B/L*(1+6*e/B)	4.73 t/m2	
Fmin=Pr/B/L*(1-6*e/B)	1.24 t/m2	
Fp	5.00 t/m2	
Fp>Fmax	1.06	
	OK	<======
Finc=(Fmax-Fmin)/B	2.32 t/m2	

四、基礎版厚度檢核

穿孔剪力檢核

d=T-0.09	0.26 m	
R=1.7 或 1.0(極限強度取 1.0)	1.00	

穿孔剪力	Vu=R*P	1.77 t	
剪力周長	L'=2*B1+2*L1+4*d	2.44 m	
穿孔剪力強度	Vd=1.06*√fc'*d*L'	97.45 t	
φ=0.85 或 1.0(極限強度取 1.0)		1.00	
Vd>Vu		55.06	
		OK	<======

樑式剪力檢核

取單位寬 1m=100cm		
Ws=P1/B/L	2.20	t/m2
B3=0	0.00	m
B2=(B-B1)/2-d	0.32	m
B23=B2-B3>0	0.32	
Vc=0.53*√(fc')*100*d*100/1000	19.97	t
V=Ws*B2-Finc*(B2-B3)/2-Fmin*(B2-B3)	0.06	t
Vu=R*V	0.06	t
Vc>Vu	307.85	
	OK	<======

五、基礎版配筋分析

下層筋

取單位寬 1m=100cm		
B4=(B-B1)/2	0.58	m
Fmoment=Fmax-Finc*B4	3.39	t/m2
M1=1/2*Fmoment*B4^2	0.56	t-m
M2=1/3*(Fmax-Fmoment)*B4^2	0.15	t-m
M3=1/2*Ws*B4^2	0.36	t-m
R=1.7 或 1.0(極限強度取 1.0)	1.00	
Mu=R*(M1+M2-M3)	0.34	t-m
彎矩配筋		
d	26.00	cm
φ=0.9 或 1.0(極限強度取 1.0)	1.00	
Rn = Mu*100000/(φ*100*xd^2)	0.51	
fy=	2800.00	kg/cm2
fc'=	210.00	kg/cm2
m=fy/(0.85xfc')	15.69	
鋼筋比=(1-SQRT(1-2*m*Rn/fy))/m	0.00018	
As_need 1=	0.47	cm2
最小鋼筋比=0.002,0.0018	0.00200	
As_need 2 =	3.50	cm2
		MIN STEEL CONTROL
需要鋼筋量 As_need =	3.50	cm2
採用#4@15		
#4 As=	1.27	cm2
ds=	15.00	cm
As 單位寬 100cm	8.47	cm2
As>As_need	2.42	
	OK	<======

上層筋

取單位寬 1m=100cm		
B4=(B-B1)/2	0.58	m
M1=1/2*Ws*B4^2	0.36	t-m
M2=1/2*Fmin*B4^2+1/6*Finc*B4^2 > 0	0.28	t-m
Mu=R*(M1-M2)	0.08	t-m
彎矩配筋		
d	26.00	cm
Rn = Mu*100000/(φ*100*xd^2)	0.12	
fy=	2800.00	kg/cm2
fc'=	210.00	kg/cm2
m=fy/(0.85xfc')	15.69	
鋼筋比=(1-SQRT(1-2*m*Rn/fy))/m	0.00004	
As_need 1=	0.12	cm2
最小鋼筋比=0.002,0.0018	0.00200	
As_need 2 =	3.50	
		MIN STEEL CONTROL
需要鋼筋量 As_need =	3.50	cm2
採用#4@15		
#4 As=	1.27	cm2
ds=	15.00	cm
As 單位寬 100cm	8.47	cm2
As>As_need	2.42	
	OK	<======

基礎拉拔檢核

	F1	F2	F3	M1	M2	M3
LR-1.2D+1.0L+1.3WB01	0.0027	-0.3521	5.1858	0.56721	0.00022	-0.00056

經分析，最大拉力為 5.186tf

混凝土基腳尺寸為 150cm x 150cm x 35cm，上方覆土 75cm 並有 10cm RC 板

經核算基礎抵抗重量為 6.108 tf > 5.186 tf (ok)

編號	單位:tf-m			
1	一層板厚度	板面積 (2*2)	板單位重	板重
	0.1	4	2.4	0.96
2	土深度	土面積	土單位重	土重
	0.75	2.25	1.8	3.0375
3	基礎厚度	基礎面積 (BxD=1.5*1.5)	基礎單位重	基礎重
	0.35	2.25	2.4	1.89
4	柱深	柱面積	柱單位重	RC 柱重
	0.75	0.1225	2.4	0.2205
合計總重				6.108

基礎與覆土重量足夠，不會有上浮情況發生。