

臺中市南屯區精密園區
三立體停車場新建工程

結 構 計 算 書

中華民國 一〇一 年 四 月

一、基本條件：

1.用途：停車場

2.結構型式：RC 造，地上四層。

3.結構平面圖：如附圖

4.材料規格：

a.混凝土 28 天抗壓強度： $f_c' = 280 \text{ kgf/cm}^2$ (4000PSI)

b.鋼筋降伏強度： $f_y = 2800 \text{ kgf/cm}^2$ (#3 以下含#3) SD280

$f_y = 4200 \text{ kgf/cm}^2$ (#4 以上含#4) SD420W

c.入口樓梯造型鋼料：

CNS SS400 或 ASTM A36， $F_y \geq 2500 \text{ kgf/cm}^2$

d.錨錠螺栓：ASTM A307

e.一般螺栓：ASTM A325 或 JIS S10T, T.C.Bolt

f.焊條：E70XX

5.土壤容許承载力： $q_a \geq 15 \text{ Tf/m}^2$

6.土壤容許承载力檢討

a.建築物靜載重應力總合 $\Sigma DL = 4.70(2\sim R1F) + 2.40(\text{筏基}) = 7.10 \text{ Tf/m}^2$

b.建築物活載重應力總合 $\Sigma LL = 2.50(1\sim R1F) = 2.50 \text{ Tf/m}^2$

c.建築物傾倒彎矩 (水平力計算另詳『五、靜力分析之建築物地震力』)

以一層版(1FL.)起算

$$M_o = (1,344.31 \times 13.60) + (955.47 \times 10.20)$$

$$+ (477.74 \times 6.80) + (720.22 \times 3.40) = 33,725.79 \text{ Tf-m}$$

d.因傾倒彎矩造成之應力 (取短向最大應力檢討說明)

$$\sigma = 33,725.79 / (96.10 \times 30.2^2 / 6) = 2.309 \text{ Tf/m}^2$$

e.長期土壤容許承载力 $(q_a)_{DL+LL} = 7.10 + 2.50 = 9.60 \text{ Tf/m}^2$

f.短期土壤容許承载力 $(q_a)_{DL+LL+EQ} = 0.75 \times (7.10 + 2.50 + 2.309)$
 $= 8.93 \text{ Tf/m}^2$

g.土壤容許承载力 $q_a = \text{Max.} [(q_a)_{DL+LL} 、 (q_a)_{DL+LL+EQ}] = 9.60 \text{ Tf/m}^2$

h.故本工程土壤容許承载力建議 $q_a \geq 15 \text{ Tf/m}^2$

7.基礎型式：採用筏式基礎

8.建造地點：台中市南屯區

9.規範：

- a.我國現行建築技術規則構造篇 (109.07)
- b.建築物耐震設計規範及解說 (100.07)
- c.建築物耐風設計規範及解說 (104.01)
- d.混凝土結構設計規範 (106.07)
- e.鋼結構容許應力設計法規範及解說 (96.06)

10.分析程式：採用 ETABS、TABS、SAP 及 STAADⅢ 等公用程式以彈性理論基礎分析；RC 梁、柱構件採用耐震韌性設計；RC 版及基礎構件採用強度設計；鋼骨(SS)結構採用容許應力設計法。

11.地盤種類說明：

依業主提供且經朱晃葵技師簽證之地質鑽探調查報告書(109 年 10 月)第 3-17 頁中資料顯示，本工程基地地層資料分為三層，分別是 (a)地表下 0.0m~7.4m 之回填礫石層($N=50$)、(b)地表下 7.4m~9.0m 之回填砂土層($N=14$)、(c)地表下 9.0m 以下之卵礫石層($N=50$)，由 N 值推估求得之平均剪力波速為 **289.28 m/s** ($\geq 270\text{m/s}$)，故本基地地盤種類屬『**第一類地盤**』(堅實地盤)，節錄局部資料如下。

依現地 N 值推估

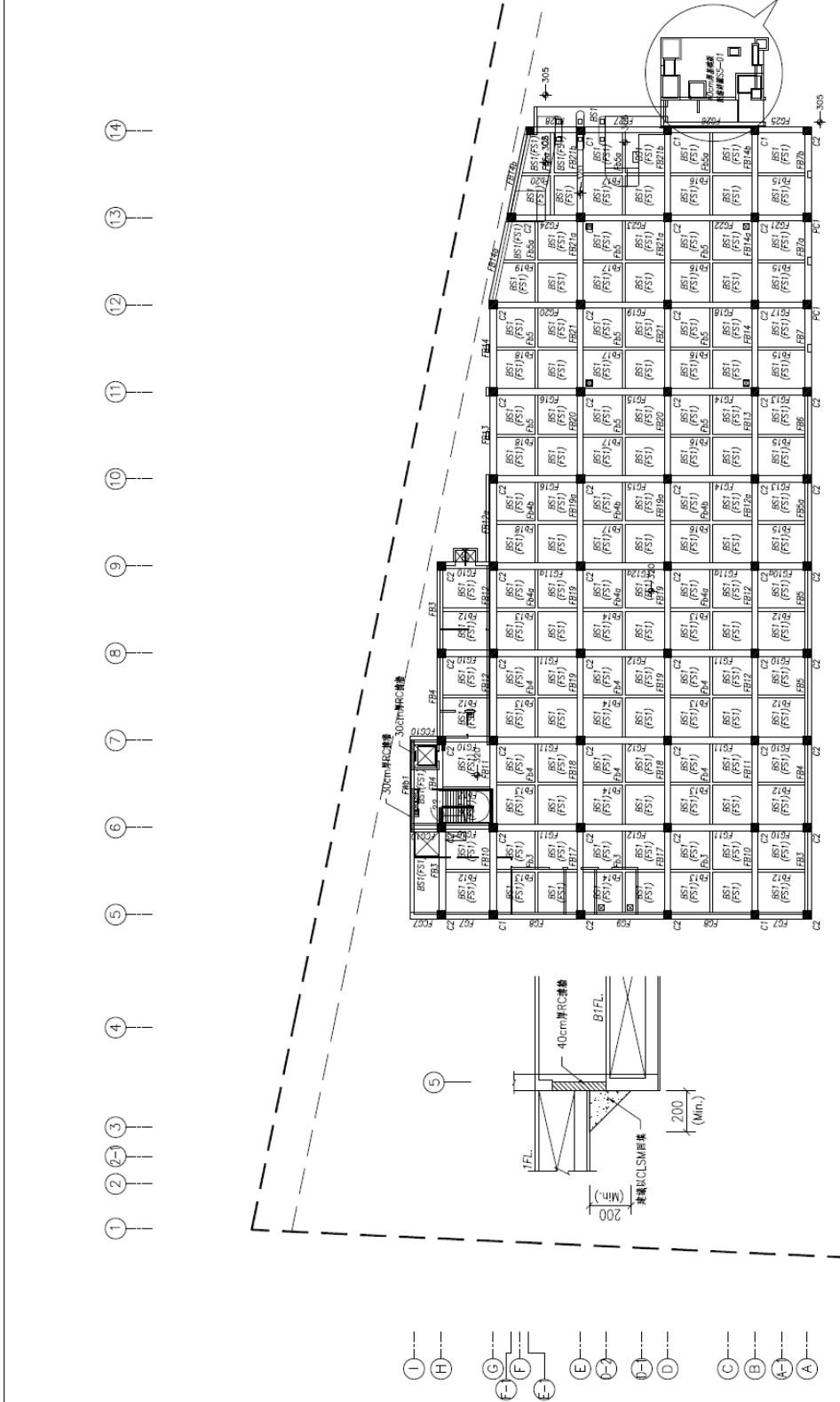
本基地30公尺內之地層取回填礫石層平均深度 $d_1=7.4\text{m}$ ， $N_1=50$ ， $V_{s1}=80 N_1^{1/3}=294.72\text{m/s}$ ；回填砂土層 $d_2=1.6\text{m}$ ， $N_2=14$ ， $V_{s1}=80 N_2^{1/3}=192.81\text{m/s}$ ；卵礫石層 $d_2=21.0\text{m}$ ， $N_2=50$ ， $V_{s1}=80 N_2^{1/3}=294.72\text{m/s}$ 。得本基地30公尺內土層之平均剪力波速為 $289.28\text{m/s} \geq 270\text{m/s}$ ，屬第一類地盤(堅實地盤)。

本工址地盤種類屬第一類地盤(堅實地盤)。



構件編號	斷面尺寸
RC柱	
C1、C2、PC1	80x80
RC梁	
FB1~FB7、FB10~FB12	
FB17~FB21、FB50、FB7a、FB7b	60x250
FB2a、FB13、FB14、FB14a	
FB14b、FB19a、FB21a、FB21b	
FG7~FG12、FGG7、FG10	
FG10a~FG12a、FG13~FG28	60x250
FS3、FS4、FS4a、FS12~FS14	
FS4b、FS5、FS5a、FS15~FS20	30x250
FS6a1 (樓梯梯梁)	30x250
RC牆	
BS1	18cm TH
FS1	60cm TH

單位: cm



一層及基礎結構平面圖
(LL=500 kg/m²)
Scale: 1/400(A3)
Scale: 1/200(A4)

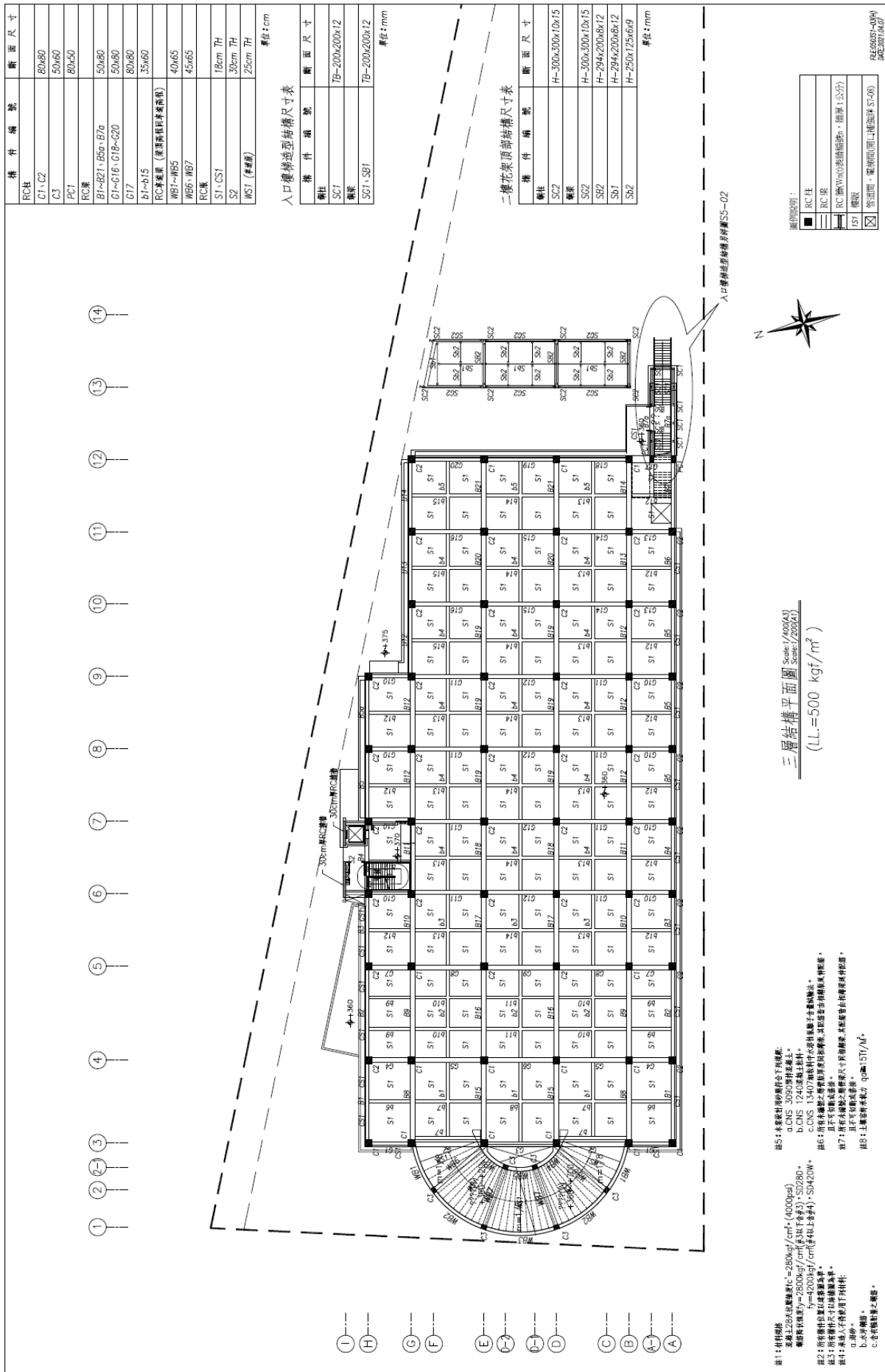
圖例說明:

■	RC柱
▬	RC梁
▬	RC牆(Wall)或結構牆、隔牆(公分)
▬	FS1 樓梯
▬	▽ 窗洞、電梯門開口補強詳 S7-01

FILE:0005T-01(0)
DATE:2021/04/01

- 註1: 材料規格
 臺灣土產水泥: $f_c = 280 \text{ kg/cm}^2$ (4000psi)
 臺灣產鋼筋: $f_y = 2800 \text{ kg/cm}^2$ (38 TF 40ksi), SD280
 註2: 所有構件均按此標準設計
 註3: 所有構件均按此標準設計
 註4: 本圖式不得引用下列材料:
 a. 鋼筋: 鋼筋
 b. 鋼筋: 鋼筋
 c. 鋼筋: 鋼筋
 註5: 土產水泥之強度: $q_u \geq 5T/N^2$
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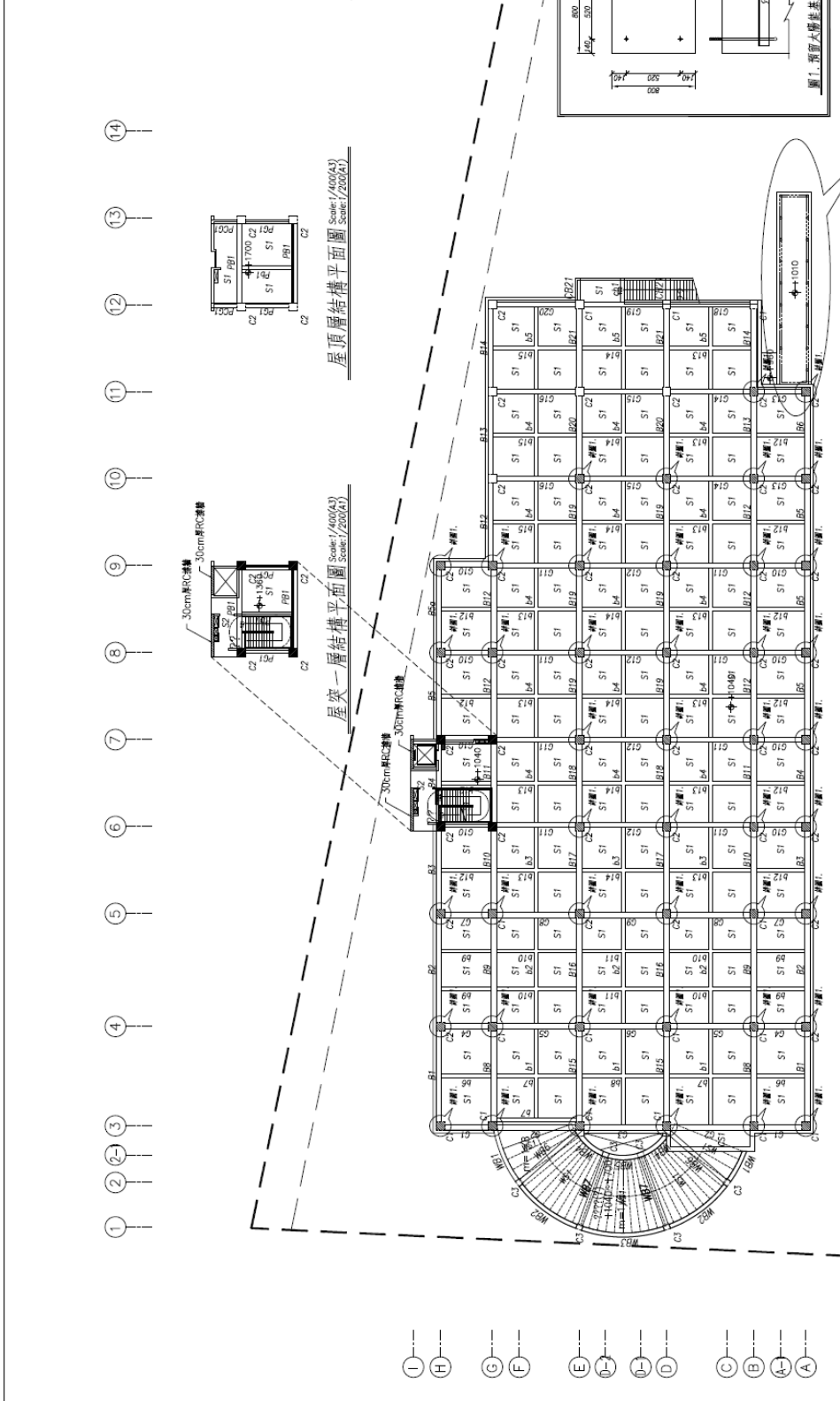
構件編號	斷面尺寸
RC柱	
C1~C2	80x80
C3	50x60
PC1	80x50
RC梁	
B1~B21, C21~L5a	50x80
C1~C20	50x60
b1~b15, c1~c1, P61	35x60
P61~P61, P61~P61	45x70
RC半圓梁 (兼樓梯間柱基兼兩柱)	
WB1~WB5	40x65
WB6~WB7	45x65
RC梁	
S1~CS1	18cm TH
S2	30cm TH
MS1 (兼梁)	25cm TH

單位: mm

入口樓梯造型結構尺寸表

構件編號	斷面尺寸
梯柱	
SC1	75-200x200x12
梯梁	
SC1, SB1	75-200x200x12

單位: mm



屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

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屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

- 註1: 材料規格
- a. CNS 3090 鋼筋 (HRB400)
 - b. CNS 124 鋼筋 (HRB400)
 - c. CNS 1347 鋼筋 (HRB400)
- 註2: 所有構件厚度均按圖面尺寸
- 註3: 所有構件厚度均按圖面尺寸
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- 註99: 所有構件厚度均按圖面尺寸
- 註100: 所有構件厚度均按圖面尺寸

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

屋頂層結構平面圖 Scale: 1/200(A3)

屋突一層結構平面圖 Scale: 1/400(A3)

二、載重：

1.靜載重 (Tf/m^2)

A.屋頂層 (R1F)

a. 隔熱材	0.050
b. 防水層	0.018
c. (1+17.6/2)cm 厚水泥砂漿粉光	0.196
d. 18cm 厚 R.C.版	0.432
e. 1.5cm 厚水泥砂漿粉光	0.030

Total 0.726

B.一般層 (2~4F)

a. 1cm 厚水泥砂漿粉光	0.020
b. 18cm 厚 R.C.版	0.432
c. 1.5cm 厚水泥砂漿粉光	0.030
d. 地板鋪面材	0.024

Total 0.506

2.活載重 (Tf/m^2)

屋頂層：0.50 Tf/m^2 (停車場)

四層：0.50 Tf/m^2 (停車場)

三層：0.50 Tf/m^2 (停車場)

二層：0.50 Tf/m^2 (停車場)

一層：0.50 Tf/m^2 (停車場)

1.00 Tf/m^2 (台電配電室、發電機室及各類機房等)

三、結構形心：

1.屋頂層(R1F)

X：以面積力距法求得 X 向座標 = 38.33

Y：以面積力距法求得 Y 向座標 = 17.05

形心座標：(38.33、17.05)

2.四層

X：以面積力距法求得 X 向座標 = 38.33

Y：以面積力距法求得 Y 向座標 = 17.05

形心座標：(38.33、17.05)

3.三層

X：以面積力距法求得 X 向座標 = 38.33

Y：以面積力距法求得 Y 向座標 = 17.05

形心座標：(38.33、17.05)

4.二層

X：以面積力距法求得 X 向座標 = 45.90

Y：以面積力距法求得 Y 向座標 = 16.65

形心座標：(45.90、16.65)

四、結構物自重：(包含柱、梁、版、牆及覆土)

屋突一層 (含屋突二層、屋頂層、水重 7.0 T

與預估光電板及其支撐系統 60kgf/m²) 3851.84 T

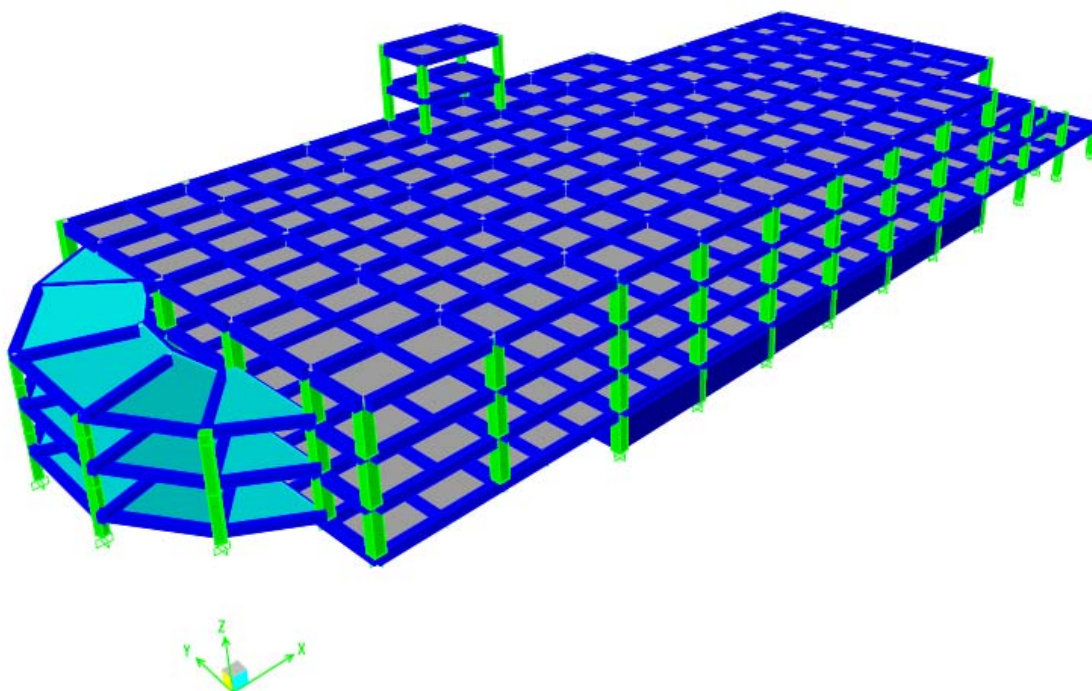
四 層 3501.87 T

三 層 3554.28 T

二 層 4298.37 T

五、分析模型及動力週期：

1.分析模型：



2.動力週期：

Mode	Period	UX	UY	UZ	SumUX	SumUY	SumUZ	RX	RY	RZ	SumRX	SumRY	SumRZ
1	0.457868	7.6594	44.873	0	7.6594	44.873	0	68.081	12.264	6.0734	68.081	12.264	6.0734
2	0.444576	52.764	7.4345	0	60.424	52.307	0	11.28	82.157	0.2854	79.361	94.421	6.3589
3	0.321089	0.3628	10.18	0	60.787	62.487	0	15.627	0.2595	45.745	94.988	94.681	52.104
4	0.279942	1.3902	0.3336	0	62.177	62.821	0	0.5793	0.4051	3.9448	95.567	95.086	56.049
5	0.240269	0.0002	1.7176	0	62.177	64.539	0	0.4161	0	0.4371	95.984	95.086	56.486
6	0.206649	0	0.0006	0	62.177	64.539	0	0.0014	0	0.048	95.985	95.086	56.534
7	0.135955	0.1086	9.2393	0	62.286	73.778	0	0.8057	0.0103	2.2799	96.791	95.096	58.814
8	0.132379	9.4172	0.0549	0	71.703	73.833	0	0.0018	1.0243	0.122	96.792	96.12	58.936
9	0.104768	0.0217	1.1828	0	71.724	75.016	0	0.0613	0.0006	6.9062	96.854	96.121	65.842
10	0.087035	0.1281	0.0002	0	71.853	75.016	0	0.0003	0.0129	0.1135	96.854	96.134	65.956
11	0.074393	0.0012	2.197	0	71.854	77.213	0	0.3303	0.0002	0.4987	97.184	96.134	66.454
12	0.071423	0.0679	4.4964	0	71.922	81.71	0	0.7714	0.0141	2.2363	97.956	96.148	68.691

經由模態分析結果可得本結構體之動力週期分別為 $T_x = 0.4446 \text{ sec}$ 、 $T_y = 0.4579 \text{ sec}$ 。

六、靜力分析之建築物地震力【長向 (X 向)】

- 1、工程名稱：臺中市南屯區精密園區停三立體停車場新建工程
- 2、建築基地位址：臺中市南屯區寶文段23地號 建築基地地盤種類= 堅實地盤（第一類）
距車籠埔斷層約 12.44 km、距大甲斷層約 6.65 km、距彰化斷層約 8.49 km
- 3、建築物地面層樓層數= 4.00 層 總樓高 h_n = 13.60 m
建築物地下層樓層數= 0.00 層 地下層總深度= 0.00 m
- 4、建築物基本振動週期計算：

鋼筋混凝土造經驗公式 $\Rightarrow T_n = 0.050 \cdot h_n^{3/4} = 0.3541 \text{ sec}$ (具RC填充牆)

動力分析之週期 $T_x = 0.4446 \text{ sec}$

則基本振動週期 T 採用 $\text{Min}(1.4T_n, T_x) = 0.4446 \text{ sec}$

- 5、震區短週期、1秒週期設計與最大考量譜加速度係數查表2-1結果：

譜加速度係數	S_S^D	S_1^D	S_S^M	S_1^M
查表值	0.70	0.40	0.90	0.50

- 6、反應譜等加速度段、等速度段之工址放大係數查表2-2(a)、(b)結果：

工址放大係數	F_a^D	F_v^D	F_a^M	F_v^M
查表值	1.0000	1.0000	1.0000	1.0000

- 7、工址短週期、1秒週期設計與最大考量譜加速度係數計算結果：

譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$F_a^D \cdot S_S^D$	$F_v^D \cdot S_1^D$	$F_a^M \cdot S_S^M$	$F_v^M \cdot S_1^M$
計算值	0.7000	0.4000	0.9000	0.5000

- 8、近斷層反應譜等加速度段、等速度段設計與最大考量調整因子查表2-5-1結果：

近斷層調整因子	N_A^D	N_V^D	N_A^M	N_V^M
不需考慮近斷層影響	1.0000	1.0000	1.0000	1.0000

- 9、工址短週期、1秒週期設計與最大考量譜加速度係數計算近斷層修正結果：

譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$N_A^D \cdot F_a^D \cdot S_S^D$	$N_V^D \cdot F_v^D \cdot S_1^D$	$N_A^M \cdot F_a^M \cdot S_S^M$	$N_V^M \cdot F_v^M \cdot S_1^M$
計算值	0.7000	0.4000	0.9000	0.5000

- 10、等值工址設計地表加速度：

**** 換算工址設計地表加速度 $PGA = 0.4 \cdot S_{DS} = 0.2800 \text{ g}$**

- 11、工址設計、最大考量水平加速度係數計算結果：(查表2-6(a)、(b))

設計週期分界 $T_O^D = S_{D1} / S_{DS} = 0.5714$ $T/T_O^D = 0.7781$ ☆
 最大考量週期分界 $T_O^M = S_{M1} / S_{MS} = 0.5556$ $T/T_O^M = 0.8003$ ☆
 ☆ $\Rightarrow 0.2T_O^D \leq T \leq T_O^D$ $S_{aD} = S_{DS} = 0.7000$ ☆
 ☆ $\Rightarrow 0.2T_O^M \leq T \leq T_O^M$ $S_{aM} = S_{MS} = 0.9000$ ☆

- 12、建築物用途係數： 第三類用途， $I = 1.25$

- 13、起始降伏放大係數： 鋼筋混凝土造 $\Rightarrow \alpha_y = 1.00$

- 14、結構系統地震力折減係數計算結果：

1.結構系統韌性容量 R ： 鋼筋混凝土造 $\Rightarrow R = 4.00$

2.結構系統容許韌性容量 R_a ： $R_a = 1 + (R - 1) / 1.5 = 3.00$

3.結構系統地震力折減係數 F_u ：

$\Rightarrow 0.6T_O^D \leq T \leq T_O^D$ $F_u = \sqrt{(2R_a - 1) + (R_a - \sqrt{2R_a - 1}) \cdot (T - 0.6T_O^D) / (0.4T_O^D)} = 2.5761$

- 15、最小設計水平總橫力計算結果：

$S_{aD} / F_u = 0.2717$

$\Rightarrow S_{aD} / F_u \leq 0.3$ $(S_{aD} / F_u)_m = S_{aD} / F_u = 0.2717$

最小設計水平總橫力 $V = I / (1.4\alpha_y) \cdot (S_{aD} / F_u)_m \cdot W$

☆ $\therefore V = 0.2426 \cdot W$ ☆

16、避免中小地震降伏之設計地震力計算結果：

近斷層調整因子	N_A^D	N_V^D	N_A^M	N_V^M
不考慮斷層距離 r	1.00	1.00	1.00	1.00

反應譜等加速度段、等速度段之工址放大係數查表2-2(a)、(b)結果：

工址放大係數	Fa^D	Fv^D	Fa^M	Fv^M
查表值	1.0000	1.0000	1.0000	1.0000
譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$N_A^D \cdot Fa^D \cdot S_S^D$	$N_V^D \cdot Fv^D \cdot S_1^D$	$N_A^M \cdot Fa^M \cdot S_S^M$	$N_V^M \cdot Fv^M \cdot S_1^M$
計算值	0.7000	0.4000	0.9000	0.5000

☆ $\Rightarrow 0.2T_O^D \leq T \leq T_O^D$ $S_{aD} = S_{DS} =$ **0.7000** ☆

$S_{aD} / F_u =$ **0.2717**

$\Rightarrow S_{aD} / F_u \leq 0.3$ $(S_{aD} / F_u)_m =$ $S_{aD} / F_u =$ **0.2717**

$V^* = I^* F_u / (4.2\alpha_y) \cdot (S_{aD} / F_u)_m \cdot W =$ **0.2083** *W ☆

17、避免最大考量地震崩塌之設計地震力計算結果：

1.結構系統最大考量時之地震力折減係數 F_{uM} ：

$\Rightarrow 0.6T_O^M \leq T \leq T_O^M$ $F_{uM} = \sqrt{(2R-1) + (R-\sqrt{(2R-1)}) \cdot (T-0.6T_O^M) / (0.4T_O^M)} =$ **3.3238**

2.計算 $(S_{aM} / F_{uM})_m$ ：

$S_{aM} / F_{uM} =$ **0.2708**

$\Rightarrow S_{aM} / F_{uM} \leq 0.3$ $(S_{aM} / F_{uM})_m =$ $S_{aM} / F_{uM} =$ **0.2708**

3.避免最大考量地震崩塌之設計地震力 V_M ：

$V_M = I / (1.4\alpha_y) \cdot (S_{aM} / F_{uM})_m \cdot W =$ **0.2418** *W ☆

18、設計地震總橫力 $= V_d = \max(V, V^*, V_M) =$ **0.2426** *W ☆

19、地下層之設計水平地震力 V_s 計算結果：

$V_s = 0.10(1-H/40) \cdot S_{DS} \cdot I^* W =$ **0.0875** $\cdot (1-H/40) \cdot W$

20、容許層間相對側位移檢核地震力

$V_{ck} = I^* F_u / 4.2 \cdot (S_{aD} / F_u)_m \cdot W =$ **0.2083** W

相較設計地震力之放大係數 $\phi =$ **0.8587**

21、自留退縮間隔 $\Delta a = 0.6 \cdot 1.4 \cdot \alpha_y \cdot R_a \cdot \delta =$ **2.5200** δ (設計地震力產生之位移)

22、垂直地震力計算：

$S_{aD,V} = 1/2 S_{aD} =$ **0.3500** (距車籠埔斷層大於 12 km 不需考慮近斷層效應)

1.結構系統地震力折減係數計算結果：

a.結構系統韌性容量R： RC構造 $\Rightarrow$ R= **3.00**

b.結構系統容許韌性容量 R_a ： $R_a = 1 + (R-1)/1.5 =$ **2.33**

c.結構系統地震力折減係數 F_{uV} ：

$\Rightarrow 0.2T_O^D \leq T \leq 0.6T_O^D$ $F_{uV} = \sqrt{(2R_a-1)} =$ **1.9149**

2.梁、版最小設計垂直地震力計算結果：

$S_{aD,V} / F_{uV} =$ **0.1828**

$\Rightarrow 0.15 < S_{aD,V} / F_{uV} < 0.40$ $(S_{aD,V} / F_{uV})_m =$ $0.52 \cdot S_{aD,V} / F_{uV} + 0.072 =$ **0.1670**

$V_z = K_z \cdot W = I / (1.4\alpha_y) \cdot (S_{aD,V} / F_{uV})_m \cdot W =$ **0.1491** W

3.柱承受之最小設計垂直地震力計算結果：

$V_{Z, \text{Column}} = K_z \cdot W = 0.40 S_{DS} I / (2\alpha_y) \cdot W =$ **0.1750** W

***** 若依 106 年 12 月 14 日內政部第 28 次規範研究發展委員會之建議值修改輸入資料及標準可得 $V_d = 0.2915W$ 、 $V_z = 0.2283W$ 及 $0.2941W$ ，故與現行規定(於 100 年修定公告)兩者取較大值作為本次設計地震力之依據。 *****

靜力分析之建築物地震力【短向 (Y 向)】

- 1、工程名稱：臺中市南屯區精密園區停三立體停車場新建工程
- 2、建築基地位址：臺中市南屯區寶文段23地號 建築基地地盤種類= 堅實地盤（第一類）
距車籠埔斷層約 12.44 km、距大甲斷層約 6.65 km、距彰化斷層約 8.49 km
- 3、建築物地面層樓層數= 4.00 層 總樓高 h_n = 13.60 m
建築物地下層樓層數= 0.00 層 地下層總深度= 0.00 m
- 4、建築物基本振動週期計算：

鋼筋混凝土造經驗公式 $\Rightarrow T_n = 0.050 \cdot h_n^{3/4} = 0.3541 \text{ sec}$ (具RC填充牆)

動力分析之週期 $T_Y = 0.4579 \text{ sec}$

則基本振動週期 T 採用 $\text{Min}(1.4T_n, T_Y) = 0.4579 \text{ sec}$

- 5、震區短週期、1秒週期設計與最大考量譜加速度係數查表2-1結果：

譜加速度係數	S_S^D	S_1^D	S_S^M	S_1^M
查表值	0.70	0.40	0.90	0.50

- 6、反應譜等加速度段、等速度段之工址放大係數查表2-2(a)、(b)結果：

工址放大係數	F_a^D	F_v^D	F_a^M	F_v^M
查表值	1.0000	1.0000	1.0000	1.0000

- 7、工址短週期、1秒週期設計與最大考量譜加速度係數計算結果：

譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$F_a^D \cdot S_S^D$	$F_v^D \cdot S_1^D$	$F_a^M \cdot S_S^M$	$F_v^M \cdot S_1^M$
計算值	0.7000	0.4000	0.9000	0.5000

- 8、近斷層反應譜等加速度段、等速度段設計與最大考量調整因子查表2-5-1結果：

近斷層調整因子	N_A^D	N_V^D	N_A^M	N_V^M
不需考慮近斷層影響	1.0000	1.0000	1.0000	1.0000

- 9、工址短週期、1秒週期設計與最大考量譜加速度係數計算近斷層修正結果：

譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$N_A^D \cdot F_a^D \cdot S_S^D$	$N_V^D \cdot F_v^D \cdot S_1^D$	$N_A^M \cdot F_a^M \cdot S_S^M$	$N_V^M \cdot F_v^M \cdot S_1^M$
計算值	0.7000	0.4000	0.9000	0.5000

- 10、等值工址設計地表加速度：

** 換算工址設計地表加速度 $\text{PGA} = 0.4 \cdot S_{DS} = 0.2800 \text{ g}$

- 11、工址設計、最大考量水平加速度係數計算結果：(查表2-6(a)、(b))

設計週期分界 $T_O^D = S_{D1} / S_{DS} = 0.5714$ $T/T_O^D = 0.8013$ ☆
 最大考量週期分界 $T_O^M = S_{M1} / S_{MS} = 0.5556$ $T/T_O^M = 0.8242$ ☆
 ☆ $\Rightarrow 0.2T_O^D \leq T \leq T_O^D$ $S_{aD} = S_{DS} = 0.7000$ ☆
 ☆ $\Rightarrow 0.2T_O^M \leq T \leq T_O^M$ $S_{aM} = S_{MS} = 0.9000$ ☆

- 12、建築物用途係數：第三類用途， $I = 1.25$

- 13、起始降伏放大係數：鋼筋混凝土造 $\Rightarrow \alpha_y = 1.00$

- 14、結構系統地震力折減係數計算結果：

1.結構系統韌性容量 R ：鋼筋混凝土造 $\Rightarrow R = 4.00$

2.結構系統容許韌性容量 R_a ： $R_a = 1 + (R - 1) / 1.5 = 3.00$

3.結構系統地震力折減係數 F_u ：

$\Rightarrow 0.6T_O^D \leq T \leq T_O^D$ $F_u = \sqrt{(2R_a - 1) + (R_a - \sqrt{(2R_a - 1)}) \cdot (T - 0.6T_O^D) / (0.4T_O^D)} = 2.6206$

- 15、最小設計水平總橫力計算結果：

$S_{aD} / F_u = 0.2671$

$\Rightarrow S_{aD} / F_u \leq 0.3$ $(S_{aD} / F_u)_m = S_{aD} / F_u = 0.2671$

最小設計水平總橫力 $V = I / (1.4\alpha_y) \cdot (S_{aD} / F_u)_m \cdot W$

☆ $\therefore V = 0.2385 \cdot W$ ☆

16、避免中小地震降伏之設計地震力計算結果：

近斷層調整因子	N_A^D	N_V^D	N_A^M	N_V^M
不考慮斷層距離 r	1.00	1.00	1.00	1.00
反應譜等加速度段、等速度段之工址放大係數查表2-2(a)、(b)結果：				
工址放大係數	Fa^D	Fv^D	Fa^M	Fv^M
查表值	1.0000	1.0000	1.0000	1.0000
譜加速度係數	S_{DS}	S_{D1}	S_{MS}	S_{M1}
計算式	$N_A^D * Fa^D * S_{DS}^D$	$N_V^D * Fv^D * S_{D1}^D$	$N_A^M * Fa^M * S_{MS}^M$	$N_V^M * Fv^M * S_{M1}^M$
計算值	0.7000	0.4000	0.9000	0.5000

☆ $\Rightarrow 0.2T_O^D \leq T \leq T_O^D$ $S_{aD} = S_{DS} =$ **0.7000** ☆

$S_{aD} / F_u =$ **0.2671**

$\Rightarrow S_{aD} / F_u \leq 0.3$ $(S_{aD} / F_u)_m =$ $S_{aD} / F_u =$ **0.2671**

$V^* = I * F_u / (4.2\alpha_y) * (S_{aD} / F_u)_m * W =$ **0.2083** *W ☆

17、避免最大考量地震崩塌之設計地震力計算結果：

1.結構系統最大考量時之地震力折減係數 F_{uM} ：

$\Rightarrow 0.6T_O^M \leq T \leq T_O^M$ $F_{uM} = \sqrt{(2R-1) + (R-\sqrt{(2R-1)}) * (T-0.6T_O^M) / (0.4T_O^M)} =$ **3.4049**

2.計算 $(S_{aM} / F_{uM})_m$ ：

$S_{aM} / F_{uM} =$ **0.2643**

$\Rightarrow S_{aM} / F_{uM} \leq 0.3$ $(S_{aM} / F_{uM})_m =$ $S_{aM} / F_{uM} =$ **0.2643**

3.避免最大考量地震崩塌之設計地震力 V_M ：

$V_M = I / (1.4\alpha_y) * (S_{aM} / F_{uM})_m * W =$ **0.2360** *W ☆

18、設計地震總橫力 $= V_d = \max(V, V^*, V_M) =$ **0.2385** *W ☆

19、地下層之設計水平地震力 V_s 計算結果：

$V_s = 0.10(1-H/40) * S_{DS} * I * W =$ **0.0875** *(1-H/40)*W

20、容許層間相對側位移檢核地震力

$V_{ck} = I * F_u / 4.2 * (S_{aD} / F_u)_m * W =$ **0.2083** W

相較設計地震力之放大係數 $\phi =$ **0.8735**

21、自留退縮間隔 $\Delta a = 0.6 * 1.4 * \alpha_y * R_a * \delta =$ **2.5200** δ (設計地震力產生之位移)

22、垂直地震力計算：

$S_{aD,V} = 1/2 S_{aD} =$ **0.3500** (距車籠埔斷層大於 12 km 不需考慮近斷層效應)

1.結構系統地震力折減係數計算結果：

a.結構系統韌性容量R： RC構造 $\Rightarrow$ R= **3.00**

b.結構系統容許韌性容量 R_a ： $R_a = 1 + (R-1)/1.5 =$ **2.33**

c.結構系統地震力折減係數 F_{uV} ：

$\Rightarrow 0.2T_O^D \leq T \leq 0.6T_O^D$ $F_{uV} = \sqrt{(2R_a-1)} =$ **1.9149**

2.梁、版最小設計垂直地震力計算結果：

$S_{aD,V} / F_{uV} =$ **0.1828**

$\Rightarrow 0.15 < S_{aD,V} / F_{uV} < 0.40$ $(S_{aD,V} / F_{uV})_m =$ $0.52 * S_{aD,V} / F_{uV} + 0.072 =$ **0.1670**

$V_z = K_z * W = I / (1.4\alpha_y) * (S_{aD,V} / F_{uV})_m * W =$ **0.1491** W

3.柱承受之最小設計垂直地震力計算結果：

$V_{Z, Column} = K_z * W = 0.40 S_{DS} I / (2\alpha_y) * W =$ **0.1750** W

***** 若依 106 年 12 月 14 日內政部第 28 次規範研究發展委員會之建議值修改輸入資料及標準可得 $V_d = 0.2876W$ 、 $V_z = 0.2283W$ 及 $0.2941W$ ，故與現行規定(於 100 年修定公告)兩者取較大值作為本次設計地震力之依據。 *****

*** 法規地震橫力之豎向分配 ***

屋突樓層數 = 0
 地面以上樓層數 = 4
 豎向分配樓層數 = 4
 地面以下樓層數 = 0

樓層	Wi (t)	Hi (m)	Ftx (t)	Fxi (t)	Vxi (t)	Fty (t)	Fyi (t)	Vyi (t)
R1F	3851.84	13.60	.0	1830.00	1830.00	.0	1805.52	1805.52
4F	3501.87	10.20		1247.80	3077.80		1231.10	3036.62
3F	3554.28	6.80		844.32	3922.12		833.02	3869.64
2F	4298.37	3.40		510.54	4432.66		503.71	4373.35

七、風力計算：

依據內政部103.6.12台內營字第1030805400號令修正發布，並自中華民國104年1月1日生效之『建築物耐風設計規範及解說』辦理

(一) 設計風壓力 p (kgf/m²) 計算

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

1. 求外風速壓 q (kgf/m²)

$$q(z) = 0.06K(z)K_{zt}[IV_{10}(C)]^2$$

$$\text{風速壓地況係數 } K(z) = 2.774[Z/Z_g]^{2\alpha} \quad ; Z > 5m$$

$$2.774[5/Z_g]^{2\alpha} \quad ; Z \leq 5m$$

地況種類==> 地況B(大城市市郊、小市鎮)

$$\alpha = 0.25 \quad , \quad Z_g = 400 \text{ m} \quad , \quad K_{zt} = 1.7 \quad (\text{平地})$$

建築物地點==> 臺中市南屯區

$$\text{基本設計風速 } V_{10}(C) = 32.5 \text{ m/s}$$

$$\text{用途係數 } I = 1.1 \quad (\text{供公眾使用、儲存危險物品建物等})$$

2. 陣風反應因子 G 及風壓係數 C_p

$$G = 1.88 \quad , \quad C_f = 1.00$$

3. 高度

$$h = 13.60 \text{ m}$$

$$q(h) = 0.06K(z)K_{zt}[IV_{10}(C)]^2$$

$$= 66.7 \text{ kgf/m}^2$$

(二) 風壓力計算

$$qGC_f = 125.36 \text{ kgf/m}^2$$

八、意外扭矩放大係數 A_x 採用計算

分析設計輸入時額外加載 5% 意外扭矩，並分析檢討意外扭矩放大係數後，意外扭矩放大係數 A_x 採用計算所得，計算如下：

X向 (+5%)						
樓層	$\delta 1$ (cm)	$\delta 2$ (cm)	平均值(δ_{avg}) (cm)	最大位移(δ_{max}) (cm)	$A_x = \left(\frac{\delta_{max}}{1.2 \times \delta_{avg}} \right)^2$	A_x
R1FL	2.081	2.171	2.126	2.171	0.724	1.000
4FL	1.471	1.550	1.511	1.550	0.731	1.000
3FL	0.651	0.686	0.669	0.686	0.731	1.000
2FL	0.000	0.000	0.000	0.000	0.000	1.000
X向 (-5%)						
樓層	$\delta 1$ (cm)	$\delta 2$ (cm)	平均值(δ_{avg}) (cm)	最大位移(δ_{max}) (cm)	$A_x = \left(\frac{\delta_{max}}{1.2 \times \delta_{avg}} \right)^2$	A_x
R1FL	2.165	2.049	2.107	2.165	0.733	1.000
4FL	1.530	1.462	1.496	1.530	0.726	1.000
3FL	0.677	0.645	0.661	0.677	0.728	1.000
2FL	0.000	0.000	0.000	0.000	0.000	1.000
Y向 (+5%)						
樓層	$\delta 1$ (cm)	$\delta 2$ (cm)	平均值(δ_{avg}) (cm)	最大位移(δ_{max}) (cm)	$A_x = \left(\frac{\delta_{max}}{1.2 \times \delta_{avg}} \right)^2$	A_x
R1FL	3.238	1.077	2.158	3.238	1.564	1.564
4FL	2.310	0.790	1.550	2.310	1.542	1.542
3FL	1.057	0.360	0.708	1.057	1.547	1.547
2FL	0.000	0.000	0.000	0.000	0.000	1.000
Y向 (-5%)						
樓層	$\delta 1$ (cm)	$\delta 2$ (cm)	平均值(δ_{avg}) (cm)	最大位移(δ_{max}) (cm)	$A_x = \left(\frac{\delta_{max}}{1.2 \times \delta_{avg}} \right)^2$	A_x
R1FL	2.394	1.512	1.953	2.394	1.043	1.043
4FL	1.701	1.104	1.403	1.701	1.022	1.022
3FL	0.775	0.504	0.640	0.775	1.020	1.020
2FL	0.000	0.000	0.000	0.000	0.000	1.000

九、層間變位檢討

分析設計輸入時額外加載 5% 意外扭矩並乘上上節計算所得之意外扭矩放大係數 A_x ，求得各層之質心變位計算如下：

X向 (+5% x A_x)				
	樓層高 (m)	側向位移 (cm)	層間變位角 (%)	檢核
R1FL	3.40	2.117	0.181	OK
4FL	3.40	1.503	0.247	OK
3FL	3.40	0.665	0.195	OK
2FL	3.40	0.000	—	
X向 (-5% x A_x)				
	樓層高 (m)	側向位移 (cm)	層間變位角 (%)	檢核
R1FL	3.40	2.118	0.181	OK
4FL	3.40	1.503	0.247	OK
3FL	3.40	0.665	0.195	OK
2FL	3.40	0.000	—	

註：依「建築物耐震設計規範與解說」2.16之規定：層間相對位移角 $\leq 0.5\%$

Y向 (+5% x A_x)				
	樓層高 (m)	側向位移 (cm)	層間變位角 (%)	檢核
R1FL	3.40	2.115	0.195	OK
4FL	3.40	1.453	0.228	OK
3FL	3.40	0.678	0.199	OK
2FL	3.40	0.000	—	
Y向 (-5% x A_x)				
	樓層高 (m)	側向位移 (cm)	層間變位角 (%)	檢核
R1FL	3.40	1.936	0.168	OK
4FL	3.40	1.364	0.217	OK
3FL	3.40	0.628	0.185	OK
2FL	3.40	0.000	—	

註：依「建築物耐震設計規範與解說」2.16之規定：層間相對位移角 $\leq 0.5\%$

十、碰撞距離檢討：

節錄分析報告頂樓變形量如下：

各層側向位移 (cm)

	X向 (+5% x A _x)	X向 (-5% x A _x)	Y向 (+5% x A _x)	Y向 (-5% x A _x)
R1FL	2.171	2.165	3.622	2.432
4FL	1.550	1.530	2.566	1.711
3FL	0.686	0.677	1.176	0.779
2FL	0.000	0.000	0.000	0.000

則 X 向需留設之最小防碰撞距離為

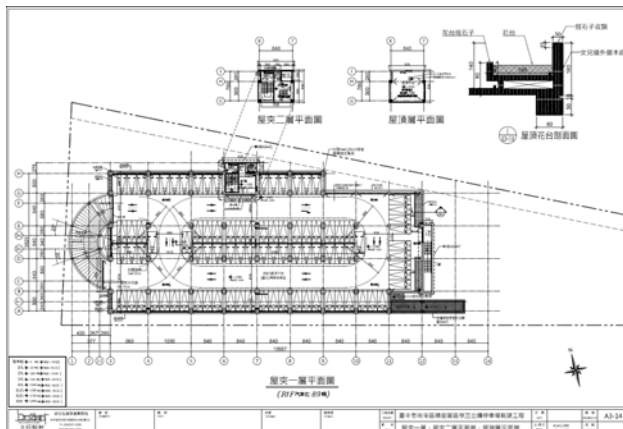
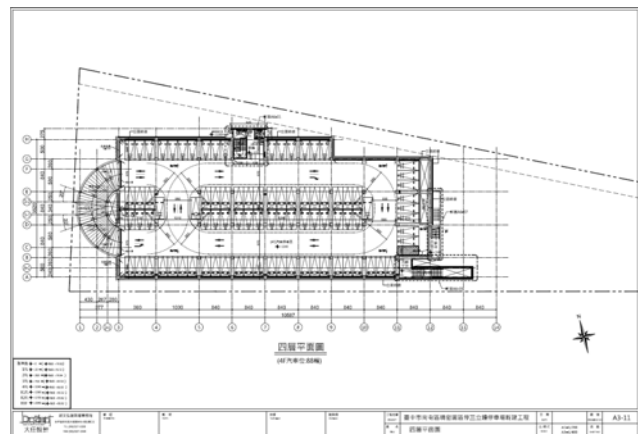
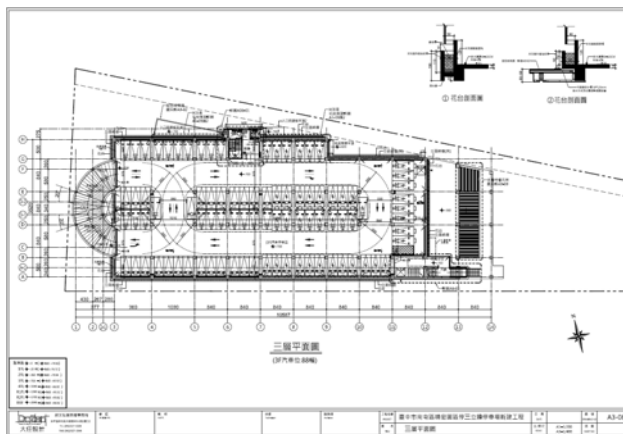
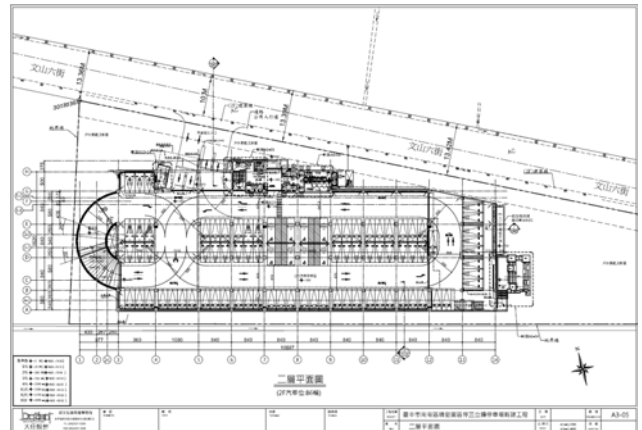
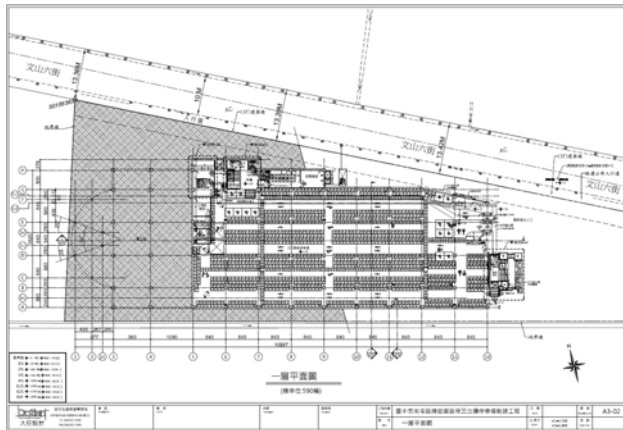
$$\begin{aligned}\Delta_x &= 0.6 \times 1.4 \times \alpha_y \times R_a \times \delta_x \\ &= 0.6 \times 1.4 \times 1.0 \times 3.0 \times 2.171 \\ &= 5.48 \text{ cm}\end{aligned}$$

則 Y 向需留設之最小防碰撞距離為

$$\begin{aligned}\Delta_y &= 0.6 \times 1.4 \times \alpha_y \times R_a \times \delta_y \\ &= 0.6 \times 1.4 \times 1.0 \times 3.0 \times 3.622 \\ &= 9.13 \text{ cm}\end{aligned}$$

十一、軟弱層檢討：

因本工程為地上四層之停車場(鋼筋混凝土結構)，各樓層高度皆相同，結構系統及隔間相似度高達 95%以上(列示各層建築平面如下)，明顯應無軟弱層情形，故無需檢討軟弱層現象。



十二、電腦分析資料：(地震力輸入時額外加載 5%意外扭矩及放大係數 A_x)

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STORY DATA

STORY	SIMILAR TO	HEIGHT	ELEVATION
RF	3F	340.000	2020.000
R2F	3F	320.000	1680.000
R1F	3F	340.000	1360.000
4F	3F	340.000	1020.000
3F	None	340.000	680.000
2F	None	340.000	340.000
BASE	None		0.000

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COORDINATE SYSTEM LOCATION DATA

NAME	TYPE	X	Y	ROTATION	BUBBLESIZE	VISIBLE
GLOBAL	Cartesian	0.000	0.000	0.00000	125.000	Yes

COORDINATE SYSTEM GRID DATA

SYSTEM NAME	GRID DIR	GRID ID	GRID TYPE	GRID HIDE	BUBBLE LOC	GRID COORDINATE
GLOBAL	X	1	Primary	No	Top	0.000
GLOBAL	X	2	Primary	No	Top	430.000
GLOBAL	X	2-1	Primary	No	Top	697.000
GLOBAL	X	3	Primary	No	Top	977.000
GLOBAL	X	4	Primary	No	Top	1937.000
GLOBAL	X	5	Primary	No	Top	3027.000
GLOBAL	X	6	Primary	No	Top	3867.000
GLOBAL	X	7	Primary	No	Top	4707.000
GLOBAL	X	8	Primary	No	Top	5547.000
GLOBAL	X	9	Primary	No	Top	6387.000
GLOBAL	X	10	Primary	No	Top	7227.000
GLOBAL	X	11	Primary	No	Top	8067.000
GLOBAL	X	12	Primary	No	Top	8907.000
GLOBAL	X	13	Primary	No	Top	9747.000
GLOBAL	X	14	Primary	No	Top	10587.000
GLOBAL	Y	A	Primary	Yes	Left	0.000
GLOBAL	Y	A-1	Primary	No	Left	240.000
GLOBAL	Y	B	Primary	No	Left	500.000
GLOBAL	Y	C	Primary	No	Left	760.000
GLOBAL	Y	D	Primary	No	Left	1340.000
GLOBAL	Y	D-1	Primary	No	Left	1590.000
GLOBAL	Y	D-2	Primary	No	Left	1930.000
GLOBAL	Y	E	Primary	No	Left	2180.000
GLOBAL	Y	E-1	Primary	No	Left	2676.400
GLOBAL	Y	F	Primary	No	Left	2760.000
GLOBAL	Y	F-1	Primary	No	Left	2848.200
GLOBAL	Y	G	Primary	No	Left	3020.000
GLOBAL	Y	H	Primary	No	Left	3520.000

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POINT COORDINATES

POINT	X	Y	DZ-BELOW
1	977.000	0.000	0.000
2	1457.000	0.000	0.000
3	1937.000	0.000	0.000

4	2300.000	0.000	0.000
5	2664.000	0.000	0.000
6	3027.000	0.000	0.000
7	3447.000	0.000	0.000
8	3867.000	0.000	0.000
9	4287.000	0.000	0.000
10	4707.000	0.000	0.000
11	5127.000	0.000	0.000
12	5547.000	0.000	0.000
13	5967.000	0.000	0.000
14	6387.000	0.000	0.000
15	6807.000	0.000	0.000
16	7227.000	0.000	0.000
17	7647.000	0.000	0.000
18	8067.000	0.000	0.000
19	8487.000	0.000	0.000
20	8907.000	0.000	0.000
21	9327.000	0.000	0.000
22	9747.000	0.000	0.000
23	10167.000	0.000	0.000
24	10587.000	0.000	0.000
25	8067.000	240.000	0.000
26	8437.000	240.000	0.000
27	8907.000	240.000	0.000
28	9747.000	240.000	0.000
29	977.000	500.000	0.000
30	1457.000	500.000	0.000
31	1937.000	500.000	0.000
32	2300.000	500.000	0.000
33	2664.000	500.000	0.000
34	3027.000	500.000	0.000
35	3447.000	500.000	0.000
36	3867.000	500.000	0.000
37	4287.000	500.000	0.000
38	4707.000	500.000	0.000
39	5127.000	500.000	0.000
40	5547.000	500.000	0.000
41	5967.000	500.000	0.000
42	6387.000	500.000	0.000
43	6807.000	500.000	0.000
44	7227.000	500.000	0.000
45	7647.000	500.000	0.000
46	8067.000	500.000	0.000
47	8437.000	500.000	0.000
48	8487.000	500.000	0.000
49	8907.000	500.000	0.000
50	9327.000	500.000	0.000
51	9747.000	500.000	0.000
52	10167.000	500.000	0.000
53	10587.000	500.000	0.000
54	430.000	760.000	0.000
54-1	430.000	760.000	272.000
55	977.000	920.000	0.000
56	1937.000	920.000	0.000
57	2300.000	920.000	0.000
58	2664.000	920.000	0.000
59	3027.000	920.000	0.000
60	3447.000	920.000	0.000
61	3867.000	920.000	0.000
62	4287.000	920.000	0.000
63	4707.000	920.000	0.000
64	5127.000	920.000	0.000
65	5547.000	920.000	0.000
66	5967.000	920.000	0.000
67	6387.000	920.000	0.000
68	6807.000	920.000	0.000
69	7227.000	920.000	0.000
70	7647.000	920.000	0.000
71	8067.000	920.000	0.000

72	8487.000	920.000	0.000
73	8907.000	920.000	0.000
74	9327.000	920.000	0.000
75	9747.000	920.000	0.000
76	10167.000	920.000	0.000
77	10587.000	920.000	0.000
78	0.000	1340.000	0.000
78-1	0.000	1340.000	204.000
79	877.000	1340.000	0.000
80	977.000	1340.000	0.000
81	1457.000	1340.000	0.000
82	1937.000	1340.000	0.000
83	2300.000	1340.000	0.000
84	2664.000	1340.000	0.000
85	3027.000	1340.000	0.000
86	3447.000	1340.000	0.000
87	3867.000	1340.000	0.000
88	4287.000	1340.000	0.000
89	4707.000	1340.000	0.000
90	5127.000	1340.000	0.000
91	5547.000	1340.000	0.000
92	5967.000	1340.000	0.000
93	6387.000	1340.000	0.000
94	6807.000	1340.000	0.000
95	7227.000	1340.000	0.000
96	7647.000	1340.000	0.000
97	8067.000	1340.000	0.000
98	8347.000	1340.000	0.000
99	8487.000	1340.000	0.000
100	8627.000	1340.000	0.000
101	8907.000	1340.000	0.000
102	9327.000	1340.000	0.000
103	9747.000	1340.000	0.000
104	10167.000	1340.000	0.000
105	10587.000	1340.000	0.000
106	697.000	1590.000	0.000
106-1	697.000	1590.000	204.000
111	977.000	1760.000	0.000
112	1937.000	1760.000	0.000
113	2300.000	1760.000	0.000
114	2664.000	1760.000	0.000
115	3027.000	1760.000	0.000
116	3447.000	1760.000	0.000
117	3867.000	1760.000	0.000
118	4287.000	1760.000	0.000
119	4707.000	1760.000	0.000
120	5127.000	1760.000	0.000
121	5547.000	1760.000	0.000
122	5967.000	1760.000	0.000
123	6387.000	1760.000	0.000
124	6807.000	1760.000	0.000
125	7227.000	1760.000	0.000
126	7647.000	1760.000	0.000
127	8067.000	1760.000	0.000
128	8347.000	1760.000	0.000
129	8487.000	1760.000	0.000
130	8627.000	1760.000	0.000
131	8907.000	1760.000	0.000
132	9327.000	1760.000	0.000
133	9747.000	1760.000	0.000
134	10587.000	1760.000	0.000
135	697.000	1930.000	0.000
135-1	697.000	1930.000	136.000
136	0.000	2180.000	0.000
136-1	0.000	2180.000	136.000
137	877.000	2180.000	0.000
138	977.000	2180.000	0.000
139	1457.000	2180.000	0.000
140	1937.000	2180.000	0.000

141	2300.000	2180.000	0.000
142	2664.000	2180.000	0.000
143	3027.000	2180.000	0.000
144	3447.000	2180.000	0.000
145	3867.000	2180.000	0.000
146	4287.000	2180.000	0.000
147	4707.000	2180.000	0.000
148	5127.000	2180.000	0.000
149	5547.000	2180.000	0.000
150	5967.000	2180.000	0.000
151	6387.000	2180.000	0.000
152	6807.000	2180.000	0.000
153	7227.000	2180.000	0.000
154	7647.000	2180.000	0.000
155	8067.000	2180.000	0.000
156	8347.000	2180.000	0.000
157	8487.000	2180.000	0.000
158	8627.000	2180.000	0.000
159	8907.000	2180.000	0.000
160	9327.000	2180.000	0.000
161	9747.000	2180.000	0.000
162	10167.000	2180.000	0.000
163	10587.000	2180.000	0.000
164	9747.000	2428.200	0.000
165	10167.000	2428.200	0.000
166	10587.000	2428.200	0.000
167	977.000	2600.000	0.000
168	1937.000	2600.000	0.000
169	2300.000	2600.000	0.000
170	2664.000	2600.000	0.000
171	3027.000	2600.000	0.000
172	3447.000	2600.000	0.000
173	3867.000	2600.000	0.000
174	4287.000	2600.000	0.000
175	4707.000	2600.000	0.000
176	5127.000	2600.000	0.000
177	5547.000	2600.000	0.000
178	5967.000	2600.000	0.000
179	6387.000	2600.000	0.000
180	6807.000	2600.000	0.000
181	7227.000	2600.000	0.000
182	7647.000	2600.000	0.000
183	8067.000	2600.000	0.000
184	8347.000	2600.000	0.000
185	8487.000	2600.000	0.000
186	8627.000	2600.000	0.000
187	8907.000	2600.000	0.000
188	9327.000	2600.000	0.000
189	9747.000	2600.000	0.000
190	8907.000	2676.400	0.000
191	10587.000	2676.400	0.000
192	430.000	2760.000	0.000
192-1	430.000	2760.000	68.000
193	10167.000	2762.300	0.000
194	9747.000	2848.200	0.000
195	9327.000	2934.100	0.000
196	977.000	3020.000	0.000
197	1457.000	3020.000	0.000
198	1937.000	3020.000	0.000
199	2300.000	3020.000	0.000
200	2664.000	3020.000	0.000
201	3027.000	3020.000	0.000
202	3447.000	3020.000	0.000
203	3867.000	3020.000	0.000
204	4287.000	3020.000	0.000
205	4707.000	3020.000	0.000
206	5127.000	3020.000	0.000
207	5547.000	3020.000	0.000
208	5707.000	3020.000	0.000

209	5967.000	3020.000	0.000
210	6387.000	3020.000	0.000
211	6807.000	3020.000	0.000
212	7227.000	3020.000	0.000
213	7647.000	3020.000	0.000
214	8067.000	3020.000	0.000
215	8347.000	3020.000	0.000
216	8487.000	3020.000	0.000
217	8627.000	3020.000	0.000
218	8907.000	3020.000	0.000
221	5707.000	3270.000	0.000
222	6387.000	3270.000	0.000
223	5707.000	3365.000	0.000
224	6387.000	3365.000	0.000
225	977.000	3520.000	0.000
226	1457.000	3520.000	0.000
227	1937.000	3520.000	0.000
228	2300.000	3520.000	0.000
229	2664.000	3520.000	0.000
230	3027.000	3520.000	0.000
231	3447.000	3520.000	0.000
232	3867.000	3520.000	0.000
233	4287.000	3520.000	0.000
234	4707.000	3520.000	0.000
235	5127.000	3520.000	0.000
236	5547.000	3520.000	0.000
237	5707.000	3520.000	0.000
238	5967.000	3520.000	0.000
239	6387.000	3520.000	0.000

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C O L U M N C O N N E C T I V I T Y D A T A

COLUMN	I END PT	J END PT	I END STORY
C1	1	1	Below
C2	3	3	Below
C3	6	6	Below
C4	8	8	Below
C5	10	10	Below
C6	12	12	Below
C7	14	14	Below
C8	16	16	Below
C9	18	18	Below
C10	20	20	Below
C11	22	22	Below
C12	24	24	Below
C13	27	27	Below
C14	28	28	Below
C15	29	29	Below
C16	31	31	Below
C17	34	34	Below
C18	36	36	Below
C19	38	38	Below
C20	40	40	Below
C21	42	42	Below
C22	44	44	Below
C23	46	46	Below
C24	49	49	Below
C25	51	51	Below
C26	53	53	Below
C27	54	54	Below
C27-1	54	54-1	Below
C28	78	78	Below
C28-1	78	78-1	Below
C29	80	80	Below
C30	82	82	Below
C31	85	85	Below

C32	87	87	Below
C33	89	89	Below
C34	91	91	Below
C35	93	93	Below
C36	95	95	Below
C37	97	97	Below
C38	101	101	Below
C39	103	103	Below
C40	105	105	Below
C41	106	106	Below
C41-1	106	106-1	Below
C42	135	135	Below
C42-1	135	135-1	Below
C43	136	136	Below
C43-1	136	136-1	Below
C44	138	138	Below
C45	140	140	Below
C46	143	143	Below
C47	145	145	Below
C48	147	147	Below
C49	149	149	Below
C50	151	151	Below
C51	153	153	Below
C52	155	155	Below
C53	159	159	Below
C54	161	161	Below
C55	163	163	Below
C56	191	191	Below
C57	192	192	Below
C57-1	192	192-1	Below
C58	194	194	Below
C59	196	196	Below
C60	198	198	Below
C61	201	201	Below
C62	203	203	Below
C63	205	205	Below
C64	207	207	Below
C65	210	210	Below
C66	212	212	Below
C67	214	214	Below
C68	218	218	Below
C69	225	225	Below
C70	227	227	Below
C71	230	230	Below
C72	232	232	Below
C73	234	234	Below
C74	236	236	Below
C75	239	239	Below

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B E A M C O N N E C T I V I T Y D A T A

BEAM	I END PT	J END PT
B1	1	3
B2	3	6
B3	6	8
B4	8	10
B5	10	12
B6	12	14
B7	14	16
B8	16	18
B9	18	20
B10	20	22
B11	22	24
B12	25	27
B13	27	28
B14	1	29

B15	2	30
B16	3	31
B17	32	4
B18	33	5
B19	6	34
B20	35	7
B21	8	36
B22	37	9
B23	10	38
B24	39	11
B25	12	40
B26	41	13
B27	14	42
B28	43	15
B29	16	44
B30	45	17
B31	18	46
B32	48	19
B33	20	49
B34	21	50
B35	22	51
B36	52	23
B37	24	53
B38	26	47
B39	29	31
B40	31	34
B41	34	36
B42	36	38
B43	38	40
B44	40	42
B45	42	44
B46	44	46
B47	46	49
B48	49	51
B49	51	53
B50	29	80
B51	30	81
B52	55	56
B53	31	82
B54	56	57
B55	83	32
B56	57	58
B57	84	33
B58	58	59
B59	34	85
B60	59	60
B61	86	35
B62	60	61
B63	36	87
B64	61	62
B65	88	37
B66	62	63
B67	38	89
B68	63	64
B69	90	39
B70	64	65
B71	40	91
B72	65	66
B73	92	41
B74	66	67
B75	42	93
B76	67	68
B77	94	43
B78	68	69
B79	44	95
B80	69	70
B81	96	45
B82	70	71
B83	46	97

B84	71	72
B85	99	48
B86	72	73
B87	49	101
B88	73	74
B89	50	102
B90	74	75
B91	51	103
B92	75	76
B93	104	52
B94	76	77
B95	53	105
B96	79	80
B97	80	82
B98	82	85
B99	85	87
B100	87	89
B101	89	91
B102	91	93
B103	93	95
B104	95	97
B105	97	101
B106	101	103
B107	103	105
B108	78-1	106-1
B109	80	138
B110	81	139
B111	111	112
B112	82	140
B113	112	113
B114	141	83
B115	113	114
B116	142	84
B117	114	115
B118	85	143
B119	115	116
B120	144	86
B121	116	117
B122	87	145
B123	117	118
B124	146	88
B125	118	119
B126	89	147
B127	119	120
B128	148	90
B129	120	121
B130	91	149
B131	121	122
B132	150	92
B133	122	123
B134	93	151
B135	123	124
B136	152	94
B137	124	125
B138	95	153
B139	125	126
B140	154	96
B141	126	127
B142	97	155
B143	127	128
B144	127	129
B145	98	156
B146	157	99
B147	128	130
B148	100	158
B149	129	131
B150	101	159
B151	131	132
B152	102	160

B153	132	133
B154	103	161
B155	162	104
B156	133	134
B157	105	163
B158	136-1	135-1
B159	137	138
B160	138	140
B161	140	143
B162	143	145
B163	145	147
B164	147	149
B165	149	151
B166	151	153
B167	153	155
B168	155	159
B169	159	161
B170	161	163
B171	164	165
B172	165	166
B173	163	191
B174	193	162
B175	161	194
B176	160	195
B177	138	196
B178	139	197
B179	167	168
B180	140	198
B181	168	169
B182	199	141
B183	169	170
B184	200	142
B185	170	171
B186	143	201
B187	171	172
B188	202	144
B189	172	173
B190	145	203
B191	173	174
B192	204	146
B193	174	175
B194	147	205
B195	175	176
B196	206	148
B197	176	177
B198	149	207
B199	177	178
B200	209	150
B201	178	179
B202	151	210
B203	179	180
B204	211	152
B205	180	181
B206	153	212
B207	181	182
B208	213	154
B209	182	183
B210	155	214
B211	183	184
B212	183	185
B213	156	215
B214	216	157
B215	184	186
B216	158	217
B217	185	187
B218	159	218
B219	187	188
B220	188	189
B221	194	191

B222	218	190
B223	218	194
B224	196	198
B225	198	201
B226	201	203
B227	203	205
B228	205	207
B229	207	210
B230	210	212
B231	212	214
B232	214	218
B233	196	225
B234	197	226
B235	198	227
B236	228	199
B237	229	200
B238	201	230
B239	231	202
B240	203	232
B241	233	204
B242	204	233
B243	205	234
B244	235	206
B245	207	236
B246	237	208
B247	238	209
B248	221	222
B249	210	239
B250	223	224
B251	225	227
B252	227	230
B253	230	232
B254	232	234
B255	234	236
B256	236	239

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BRACE CONNECTIVITY DATA

BRACE	I END PT	J END PT	I END STORY
D1	29	54-1	Below
D2	54-1	78-1	Same
D3	79	54-1	Below
D4	79	106-1	Below
D5	78-1	136-1	Same
D6	106-1	135-1	Same
D7	135-1	137	Same
D8	136-1	192-1	Same
D9	192-1	137	Same
D10	192-1	196	Same

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WALL CONNECTIVITY DATA

WALL	POINT 1	POINT 2	POINT 3	POINT 4	PT1 STORY	PT2 STORY	PT3 STORY	PT4 STORY
W1	6	8	8	6	Below	Below	Same	Same
W2	8	10	10	8	Below	Below	Same	Same
W3	10	12	12	10	Below	Below	Same	Same
W4	12	14	14	12	Below	Below	Same	Same
W5	14	16	16	14	Below	Below	Same	Same
W6	16	18	18	16	Below	Below	Same	Same
W7	6	34	34	6	Below	Below	Same	Same
W8	34	85	85	34	Below	Below	Same	Same
W9	53	105	105	53	Below	Below	Same	Same
W10	85	143	143	85	Below	Below	Same	Same

W11	143	201	201	143	Below	Below	Same	Same
W12	210	212	212	210	Below	Below	Same	Same
W13	212	214	214	212	Below	Below	Same	Same
W14	214	218	218	214	Below	Below	Same	Same
W15	201	230	230	201	Below	Below	Same	Same
W16	236	239	239	236	Below	Below	Same	Same

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F L O O R C O N N E C T I V I T Y D A T A

FLOOR	POINT	POINT	POINT	POINT
F1	18	20	27	25
F2	1	3	31	29
F3	3	6	34	31
F4	6	8	36	34
F5	8	10	38	36
F6	10	12	40	38
F7	12	14	42	40
F8	14	16	44	42
F9	16	18	46	44
F10	18	20	49	46
F11	20	22	51	49
F12	22	24	53	51
F13	25	26	47	46
F14	29	31	82	80
F15	31	34	85	82
F16	34	36	87	85
F17	36	38	89	87
F18	38	40	91	89
F19	40	42	93	91
F20	42	44	95	93
F21	44	46	97	95
F22	46	49	101	97
F23	49	51	103	101
F24	51	53	105	103
F25	80	82	140	138
F26	82	85	143	140
F27	85	87	145	143
F28	87	89	147	145
F29	89	91	149	147
F30	91	93	151	149
F31	93	95	153	151
F32	95	97	155	153
F33	97	100	158	155
F34	97	101	159	155
F35	155	159	101	97
F36	101	103	161	159
F37	103	105	163	161
F38	194	191	163	161
F39	218	194	161	159
F40	138	140	198	196
F41	140	143	201	198
F42	143	145	203	201
F43	145	147	205	203
F44	147	149	207	205
F45	149	151	210	207
F46	151	153	212	210
F47	153	155	214	212
F48	155	158	217	214
F49	155	159	218	214
F50	214	218	159	155
F51	196	198	227	225
F52	198	201	230	227
F53	201	203	232	230
F54	232	233	204	203
F55	203	205	234	232
F56	233	234	205	204

F57	205	207	236	234
F58	207	210	239	236

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RAMP CONNECTIVITY DATA

RAMP	POINT 1	POINT 2	POINT 3	POINT 4	PT1 STORY	PT2 STORY	PT3 STORY	PT4 STORY
R1	80	29	54-1	79	Below	Below	Same	Below
R2	79	80	29	54-1	Below	Below	Below	Same
R3	79	106-1	78-1	54-1	Below	Same	Same	Same
R4	79	54-1	78-1	106-1	Below	Same	Same	Same
R5	106-1	78-1	136-1	135-1	Same	Same	Same	Same
R6	135-1	136-1	192-1	137	Same	Same	Same	Same
R7	192-1	196	138	137	Same	Same	Same	Same

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RIGID DIAPHRAGM POINT CONNECTIVITY DATA

STORY	DIAPHRAGM	POINT	POINT	POINT	POINT	POINT
RF	D1	203 233	232	205	234	204
R2F	D1	203 233	232	205	234	204
R1F	D1	225 236 8 18 38 49 89 101 147 159 205 218 197 112 229 4 231 7 37 90 150 152 154 157 171 176 181 113 118 123 129 60 65 70	227 239 10 29 40 80 91 138 149 196 207 2 226 167 200 142 202 233 9 39 92 94 96 99 172 177 182 114 119 124 131 61 66 71	230 1 12 31 42 82 93 140 151 198 210 30 55 168 141 84 144 204 235 11 41 43 45 48 173 178 183 115 120 125 57 62 67 72	232 3 14 34 44 85 95 143 153 201 212 81 56 228 83 33 86 146 206 238 13 15 17 169 174 179 185 116 121 126 58 63 68 73	234 6 16 36 46 87 97 145 155 203 214 139 111 199 32 5 35 88 148 209 211 213 216 170 175 180 187 117 122 127 59 64 69 137
4F	D1	1 225 198 143 87	29 3 227 201 145	80 31 6 230 203	138 82 34 8 232	196 140 85 36 10

		38	89	147	205	234
		12	40	91	149	207
		236	14	42	93	151
		210	239	16	44	95
		153	212	18	46	97
		155	214	49	101	159
		218	2	30	81	139
		197	226	55	56	111
		112	167	168	228	199
		229	200	141	83	32
		4	142	84	33	5
		231	202	144	86	35
		7	233	204	146	88
		37	9	235	206	148
		90	39	11	238	209
		150	92	41	13	211
		152	94	43	15	213
		154	96	45	17	216
		157	99	48	169	170
		171	172	173	174	175
		176	177	178	179	180
		181	182	183	187	113
		114	115	116	117	118
		119	120	121	122	123
		124	125	126	127	131
		57	58	59	60	61
		62	63	64	65	66
		67	68	69	70	71
		72	73	100	158	217
		98	156	215	184	186
		128	130	20	27	25
		26	47	78	136	54
		192	106	135	137	79
3F	D1	1	29	80	138	196
		225	3	31	82	140
		198	227	6	34	85
		143	201	230	8	36
		87	145	203	232	10
		38	89	147	205	234
		12	40	91	149	207
		236	14	42	93	151
		210	239	16	44	95
		153	212	18	46	97
		155	214	49	101	159
		218	2	30	81	139
		197	226	55	56	111
		112	167	168	228	199
		229	200	141	83	32
		4	142	84	33	5
		231	202	144	86	35
		7	233	204	146	88
		37	9	235	206	148
		90	39	11	238	209
		150	92	41	13	211
		152	94	43	15	213
		154	96	45	17	216
		157	99	48	169	170
		171	172	173	174	175
		176	177	178	179	180
		181	182	183	187	113
		114	115	116	117	118
		119	120	121	122	123
		124	125	126	127	131
		57	58	59	60	61
		62	63	64	65	66
		67	68	69	70	71
		72	73	100	158	217
		98	156	215	185	129

		20	27	19	22	28
		136	78	54	192	106
		135	79	137		
2F	D1	1	29	80	138	196
		225	3	31	82	140
		198	227	6	34	85
		143	201	230	8	36
		87	145	203	232	10
		38	89	147	205	234
		12	40	91	149	207
		236	14	42	93	151
		210	239	16	44	95
		153	212	18	46	97
		155	214	49	101	159
		218	20	27	22	28
		2	30	81	139	197
		226	55	56	111	112
		167	168	228	199	229
		200	141	83	32	4
		142	84	33	5	231
		202	144	86	35	7
		233	204	146	88	37
		9	235	206	148	90
		39	11	238	209	150
		92	41	13	211	152
		94	43	15	213	154
		96	45	17	216	157
		99	48	169	170	171
		172	173	174	175	176
		177	178	179	180	181
		182	183	187	113	114
		115	116	117	118	119
		120	121	122	123	124
		125	126	127	131	57
		58	59	60	61	62
		63	64	65	66	67
		68	69	70	71	72
		73	100	158	217	98
		156	215	185	129	19
		51	103	161	194	24
		53	105	163	191	190
		21	50	102	160	195
		193	162	104	52	23
		74	75	76	77	132
		133	134	188	189	166
		165	164	237	208	223
		224	221	222	78	136
		54	192	106	135	79

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MASS SOURCE DATA

MASS	LATERAL	LUMP MASS
FROM	MASS ONLY	AT STORIES

Masses	Yes	Yes
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DIAPHRAGM MASS DATA

STORY	DIAPHRAGM	MASS-X	MASS-Y	MMI	X-M	Y-M
RF	D1	6.817E+01	6.817E+01	1.216E+07	4287.000	3270.000
R2F	D1	7.287E+01	7.287E+01	1.328E+07	4287.000	3270.000
R1F	D1	3.701E+03	3.701E+03	2.275E+10	4785.700	1718.050

4F	D1	4.216E+03	4.216E+03	3.049E+10	4434.122	1694.008
3F	D1	4.190E+03	4.190E+03	3.027E+10	4596.856	1683.111
2F	D1	5.040E+03	5.040E+03	4.710E+10	5630.101	1623.594

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ASSEMBLED POINT MASSES

STORY	POINT	UX	UY	UZ	RX	RY	RZ
RF	258	6.817E+01	6.817E+01	0.000E+00	0.000E+00	0.000E+00	1.216E+07
R2F	259	7.287E+01	7.287E+01	0.000E+00	0.000E+00	0.000E+00	1.328E+07
R1F	260	3.701E+03	3.701E+03	0.000E+00	0.000E+00	0.000E+00	2.275E+10
R1F	(866)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R1F	(867)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
R1F	(868)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4F	261	4.216E+03	4.216E+03	0.000E+00	0.000E+00	0.000E+00	3.049E+10
4F	(869)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4F	(870)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
4F	(871)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3F	262	4.190E+03	4.190E+03	0.000E+00	0.000E+00	0.000E+00	3.027E+10
3F	(872)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3F	(873)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
3F	(874)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2F	263	5.040E+03	5.040E+03	0.000E+00	0.000E+00	0.000E+00	4.710E+10
2F	(875)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2F	(876)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2F	(877)	1.999E+01	1.999E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2F	(878)	2.429E+01	2.429E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	6	1.103E+01	1.103E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	8	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	10	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	12	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	14	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	16	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	18	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	20	1.665E+00	1.665E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	22	1.665E+00	1.665E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	24	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	28	1.665E+00	1.665E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	34	1.103E+01	1.103E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	36	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	38	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	40	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	42	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	44	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	46	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	49	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	51	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	53	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	85	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	87	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	89	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	91	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	93	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	95	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	97	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	101	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	103	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	105	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	143	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	145	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	147	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	149	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	151	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	153	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	155	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	159	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	161	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

BASE	163	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	191	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	194	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	201	1.103E+01	1.103E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	203	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	205	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	207	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	210	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	212	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	214	1.315E+01	1.315E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	218	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	230	5.785E+00	5.785E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	232	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	234	2.663E+00	2.663E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	236	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
BASE	239	7.907E+00	7.907E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
RF	A11	6.817E+01	6.817E+01	0.000E+00	0.000E+00	0.000E+00	1.216E+07
R2F	A11	7.287E+01	7.287E+01	0.000E+00	0.000E+00	0.000E+00	1.328E+07
R1F	A11	3.761E+03	3.761E+03	0.000E+00	0.000E+00	0.000E+00	2.275E+10
4F	A11	4.275E+03	4.275E+03	0.000E+00	0.000E+00	0.000E+00	3.049E+10
3F	A11	4.250E+03	4.250E+03	0.000E+00	0.000E+00	0.000E+00	3.027E+10
2F	A11	5.125E+03	5.125E+03	0.000E+00	0.000E+00	0.000E+00	4.710E+10
BASE	A11	3.055E+02	3.055E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
Totals	A11	1.786E+04	1.786E+04	0.000E+00	0.000E+00	0.000E+00	1.306E+11

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GROUP MASS DATA

GROUP NAME	SELF MASS	SELF WEIGHT	TOTAL MASS-X	TOTAL MASS-Y	TOTAL MASS-Z
ALL	17857.554517529290.583	17857.5545	17857.5545	0.0000	

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MATERIAL LIST BY ELEMENT TYPE

ELEMENT TYPE	MATERIAL	TOTAL MASS tons	NUMBER PIECES	NUMBER STUDS
Column	CONC	1240.80	256	
Beam	CONC	4200.10	860	0
Brace	CONC	105.98	30	
Wall	CONC	312.76		
Floor	SRIF	2634.84		
Floor	S4F	4952.05		
Floor	S3F	178.22		
Floor	S2FA	2593.97		
Floor	S2FC	646.78		
Ramp	WS	645.03		
Ramp	CONC	18.77		

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MATERIAL LIST BY SECTION

SECTION	ELEMENT TYPE	NUMBER PIECES	TOTAL LENGTH meters	TOTAL MASS tons	NUMBER STUDS
C1	Column	221	751.400	1155.59	
C2	Column	26	77.400	55.80	
B1	Beam	405	3254.056	2832.52	0
PC1	Column	9	30.600	29.41	
B2	Beam	8	53.774	73.78	0
WB1	Beam	8	20.810	10.85	0
WB1	Brace	26	150.677	86.90	

WB2	Beam	4	29.619	18.57	0
WB2	Brace	4	29.417	19.09	
BB	Beam	427	2431.764	1227.14	0
PB1	Beam	8	53.600	37.24	0
W1	Wall			312.76	
W1	Ramp			18.77	
SR1F	Floor			2634.84	
S4F	Floor			4952.05	
S3F	Floor			178.22	
S2FA	Floor			2593.97	
S2FC	Floor			646.78	
WS	Ramp			645.03	

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M A T E R I A L L I S T B Y S T O R Y

STORY	ELEMENT TYPE	MATERIAL	TOTAL WEIGHT tons	FLOOR AREA m2	UNIT WEIGHT kg/m2	NUMBER PIECES	NUMBER STUDS
RF	Column	CONC	9.80	42.000	233.4343	4	
RF	Beam	CONC	21.14	42.000	503.4285	5	0
RF	Floor	SR1F	40.88	42.000	973.2150		
R2F	Column	CONC	9.23	42.000	219.7029	4	
R2F	Beam	CONC	21.14	42.000	503.4285	5	0
R2F	Floor	SR1F	40.88	42.000	973.2150		
R1F	Column	CONC	300.17	2623.360	114.4232	62	
R1F	Beam	CONC	967.24	2623.360	368.7010	199	0
R1F	Brace	CONC	35.15	2623.360	13.3993	10	
R1F	Floor	SR1F	2553.09	2623.360	973.2150		
R1F	Ramp	WS	191.55	2623.360	73.0171		
R1F	Ramp	CONC	18.77	2623.360	7.1540		
4F	Column	CONC	314.06	2606.100	120.5105	64	
4F	Beam	CONC	998.07	2606.100	382.9730	206	0
4F	Brace	CONC	35.68	2606.100	13.6915	10	
4F	Floor	S4F	2536.30	2606.100	973.2150		
4F	Ramp	WS	226.74	2606.100	87.0033		
3F	Column	CONC	320.60	2665.360	120.2834	66	
3F	Beam	CONC	998.29	2665.360	374.5427	205	0
3F	Brace	CONC	35.15	2665.360	13.1882	10	
3F	Floor	S4F	2415.75	2665.360	906.3516		
3F	Floor	S3F	178.22	2665.360	66.8634		
3F	Ramp	WS	226.74	2665.360	85.0689		
2F	Column	CONC	286.94	3143.858	91.2692	56	
2F	Beam	CONC	1194.22	3143.858	379.8571	240	0
2F	Wall	CONC	312.76	3143.858	99.4814		
2F	Floor	S2FA	2593.97	3143.858	825.0909		
2F	Floor	S2FC	646.78	3143.858	205.7279		
SUM	Column	CONC	1240.80	11122.678	111.5562	256	
SUM	Beam	CONC	4200.10	11122.678	377.6156	860	0
SUM	Brace	CONC	105.98	11122.678	9.5286	30	
SUM	Wall	CONC	312.76	11122.678	28.1187		
SUM	Floor	SR1F	2634.84	11122.678	236.8893		
SUM	Floor	S4F	4952.05	11122.678	445.2209		
SUM	Floor	S3F	178.22	11122.678	16.0227		
SUM	Floor	S2FA	2593.97	11122.678	233.2144		
SUM	Floor	S2FC	646.78	11122.678	58.1496		
SUM	Ramp	WS	645.03	11122.678	57.9922		
SUM	Ramp	CONC	18.77	11122.678	1.6873		
TOTAL	All	All	17529.29	11122.678	1575.9956	1146	0

M A T E R I A L P R O P E R T Y D A T A

MATERIAL NAME	MATERIAL TYPE	DESIGN TYPE	MATERIAL DIR/PLANE	MODULUS OF ELASTICITY	POISSON'S RATIO	THERMAL COEFF	SHEAR MODULUS
STEEL	Iso	Steel	All	2038901.916	0.3000	1.1700E-05	784193.045
WS	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
OTHER	Iso	None	All	2038901.916	0.3000	1.1700E-05	784193.045
SR1F	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
S4F	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
S3F	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
S2FA	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
S2FB	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
S2FC	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444
CONC	Iso	Concrete	All	253105.065	0.2000	9.9000E-06	105460.444

M A T E R I A L P R O P E R T Y M A S S A N D W E I G H T

MATERIAL NAME	MASS PER UNIT VOL	WEIGHT PER UNIT VOL
STEEL	7.9814E-06	7.8334E-03
WS	5.5080E-06	5.4068E-03
OTHER	7.9814E-06	7.8334E-03
SR1F	5.5080E-06	5.4068E-03
S4F	5.5080E-06	5.4068E-03
S3F	5.5080E-06	5.4068E-03
S2FA	5.5080E-06	5.4068E-03
S2FB	5.5080E-06	5.4068E-03
S2FC	5.5080E-06	5.4068E-03
CONC	2.4480E-06	2.4030E-03

M A T E R I A L D E S I G N D A T A F O R S T E E L M A T E R I A L S

MATERIAL NAME	STEEL FY	STEEL FU	STEEL COST (\$)
STEEL	3515.348	4569.953	27.68

M A T E R I A L D E S I G N D A T A F O R C O N C R E T E M A T E R I A L S

MATERIAL NAME	LIGHTWEIGHT CONCRETE	CONCRETE FC	REBAR FY	REBAR FYS	LIGHTWT REDUC FACT
WS	No	280.000	4200.000	4200.000	N/A
SR1F	No	280.000	4200.000	4200.000	N/A
S4F	No	280.000	4200.000	4200.000	N/A
S3F	No	280.000	4200.000	4200.000	N/A
S2FA	No	280.000	4200.000	4200.000	N/A
S2FB	No	280.000	4200.000	4200.000	N/A
S2FC	No	280.000	4200.000	4200.000	N/A
CONC	No	280.000	4200.000	4200.000	N/A

F R A M E S E C T I O N P R O P E R T Y D A T A

FRAME SECTION NAME	MATERIAL NAME	SECTION SHAPE NAME OR NAME IN SECTION DATABASE FILE	CONC COL	CONC BEAM
C1	CONC	Rectangular	Yes	
C2	CONC	Rectangular	Yes	
B1	CONC	Rectangular		Yes
PC1	CONC	Rectangular	Yes	

B2	CONC	Rectangular	Yes
WB1	CONC	Rectangular	Yes
WB2	CONC	Rectangular	Yes
BB	CONC	Rectangular	Yes
PB1	CONC	Rectangular	Yes

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION DEPTH	FLANGE WIDTH TOP	FLANGE THICK TOP	WEB THICK	FLANGE WIDTH BOT	FLANGE THICK BOT
C1	80.0000	80.0000	0.0000	0.0000	0.0000	0.0000
C2	50.0000	60.0000	0.0000	0.0000	0.0000	0.0000
B1	80.0000	50.0000	0.0000	0.0000	0.0000	0.0000
PC1	80.0000	50.0000	0.0000	0.0000	0.0000	0.0000
B2	80.0000	80.0000	0.0000	0.0000	0.0000	0.0000
WB1	60.0000	40.0000	0.0000	0.0000	0.0000	0.0000
WB2	60.0000	45.0000	0.0000	0.0000	0.0000	0.0000
BB	60.0000	35.0000	0.0000	0.0000	0.0000	0.0000
PB1	70.0000	45.0000	0.0000	0.0000	0.0000	0.0000

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION AREA	TORSIONAL CONSTANT	MOMENTS OF INERTIA		SHEAR AREAS	
			I33	I22	A2	A3
C1	6400.0000	5768533.605	3413333.333	3413333.333	5333.3333	5333.3333
C2	3000.0000	1240246.4725	625000.0000	900000.0000	2500.0000	2500.0000
B1	4000.0000	2037522.6749	2133333.3333	833333.3333	3333.3333	3333.3333
PC1	4000.0000	2037522.6749	2133333.3333	833333.3333	3333.3333	3333.3333
B2	6400.0000	5768533.605	3413333.333	3413333.333	5333.3333	5333.3333
WB1	2400.0000	751249.3995	720000.0000	320000.0000	2000.0000	2000.0000
WB2	2700.0000	984074.3861	810000.0000	455625.0000	2250.0000	2250.0000
BB	2100.0000	545409.4867	630000.0000	214375.0000	1750.0000	1750.0000
PB1	3150.0000	1277374.6992	1286250.0000	531562.5000	2625.0000	2625.0000

FRAME SECTION PROPERTY DATA

FRAME SECTION NAME	SECTION MODULI		PLASTIC MODULI		RADIUS OF GYRATION	
	S33	S22	Z33	Z22	R33	R22
C1	85333.3333	85333.3333	128000.0000	128000.0000	23.0940	23.0940
C2	25000.0000	30000.0000	37500.0000	45000.0000	14.4338	17.3205
B1	53333.3333	33333.3333	80000.0000	50000.0000	23.0940	14.4338
PC1	53333.3333	33333.3333	80000.0000	50000.0000	23.0940	14.4338
B2	85333.3333	85333.3333	128000.0000	128000.0000	23.0940	23.0940
WB1	24000.0000	16000.0000	36000.0000	24000.0000	17.3205	11.5470
WB2	27000.0000	20250.0000	40500.0000	30375.0000	17.3205	12.9904
BB	21000.0000	12250.0000	31500.0000	18375.0000	17.3205	10.1036
PB1	36750.0000	23625.0000	55125.0000	35437.5000	20.2073	12.9904

FRAME SECTION WEIGHTS AND MASSES

FRAME SECTION NAME	TOTAL WEIGHT	TOTAL MASS
C1	1155593.0880	1177.2334
C2	55797.6600	56.8426
B1	2832517.8778	2885.5613
PC1	29412.7200	29.9635
B2	73779.9990	75.1616
WB1	97746.2141	99.5767
WB2	37654.1368	38.3593
BB	1227141.0673	1250.1212
PB1	37241.6940	37.9391

CONCRETE COLUMN DATA

FRAME SECTION NAME	REINF CONFIGURATION		REINF SIZE/TYPE	NUM BARS 3DIR/2DIR	NUM BARS CIRCULAR	BAR COVER
	LONGIT	LATERAL				
C1	Rectangular Ties		#9/Design	3/3	N/A	4.5720
C2	Rectangular Ties		#9/Design	3/3	N/A	4.5720
PC1	Rectangular Ties		#9/Design	3/3	N/A	8.0000

CONCRETE BEAM DATA

FRAME SECTION NAME	TOP COVER	BOT COVER	TOP LEFT AREA	TOP RIGHT AREA	BOT LEFT AREA	BOT RIGHT AREA
B1	4.0000	4.0000	0.000	0.000	0.000	0.000
B2	4.0000	4.0000	0.000	0.000	0.000	0.000
WB1	4.0000	4.0000	0.000	0.000	0.000	0.000
WB2	4.0000	4.0000	0.000	0.000	0.000	0.000
BB	4.0000	4.0000	0.000	0.000	0.000	0.000
PB1	4.0000	4.0000	0.000	0.000	0.000	0.000

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SHELL SECTION PROPERTY DATA

SHELL SECTION	MATERIAL NAME	SHELL TYPE	LOAD DIST ONE WAY	MEMBRANE THICK	BENDING THICK	TOTAL WEIGHT	TOTAL MASS
W1	CONC	Shell-Thin	No	30.0000	30.0000	331522.7105	337.7310
SR1F	SR1F	Membrane	No	18.0000	18.0000	2634843.3624	2684.1850
S4F	S4F	Membrane	No	18.0000	18.0000	4952048.813	5044.7838
S3F	S3F	Membrane	No	18.0000	18.0000	178215.1308	181.5525
S2FA	S2FA	Membrane	No	18.0000	18.0000	2593968.3324	2642.5445
S2FB	S2FB	Membrane	No	30.0000	30.0000	0.0000	0.0000
S2FC	S2FC	Membrane	No	25.0000	25.0000	646779.2247	658.8912
WS	WS	Membrane	No	25.0000	25.0000	645028.5526	657.1077

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DECK SECTION PROPERTY DATA

DECK SECTION	DECK TYPE	SLAB MATERIAL	DECK MATERIAL	DECK SHEAR THICK	DECK UNIT WT
DECK1	Filled	WS	N/A	N/A	1.1230E-03

DECK SECTION SHEAR STUD DATA

DECK SECTION	STUD DIAM	STUD HEIGHT	STUD FU
DECK1	1.9050	15.2400	4569.953

DECK SECTION GEOMETRY DATA

DECK SECTION	SLAB DEPTH	RIB DEPTH	RIB WIDTH	RIB SPACING
DECK1	8.8900	7.6200	15.2400	30.4800

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LINK PROPERTY DATA

LINK: NLPR1
TYPE: Damper

MASS	WEIGHT	INERTIA 1	INERTIA 2	INERTIA 3	P-D M2I	P-D M2J	P-D M3I	P-D M3J
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
DOF	KE	CE	DJ	K	C	C EXP		
U1	0.0000	0.0000	N/A	---	---	---		

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STATIC LOAD CASES

STATIC CASE	CASE TYPE	AUTO LAT LOAD	SELF WT MULTIPLIER	NOTIONAL FACTOR	NOTIONAL DIRECTION
EX1	QUAKE	USER_LOADS	0.0000		
EY1	QUAKE	USER_LOADS	0.0000		
EX2	QUAKE	USER_LOADS	0.0000		
EY2	QUAKE	USER_LOADS	0.0000		

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LOADING COMBINATIONS

COMBO	COMBO TYPE	CASE	CASE TYPE	SCALE FACTOR
COMB1	ADD	EX1	Static	-1.0000
COMB2	ADD	EX2	Static	-1.0000
COMB3	ADD	EY1	Static	-1.0000
COMB4	ADD	EY2	Static	-1.0000

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AUTO SEISMIC USER LOADS

Case: EX1

AUTO SEISMIC INPUT DATA

Additional Eccentricity = 5%

SPECIFIED AUTO SEISMIC LOADS AT DIAPHRAGM CENTER OF MASS

STORY	DIAPHRAGM	FX	FY	MZ
RF	D1	0.00	0.00	0.000
R2F	D1	0.00	0.00	0.000
R1F	D1	1830000.00	0.00	0.000
4F	D1	1247800.00	0.00	0.000
3F	D1	844320.00	0.00	0.000
2F	D1	510540.00	0.00	0.000

AUTO SEISMIC CALCULATION RESULTS

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
-------	----	----	----	----	----	----

RF	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 2020.0000)
	0.00 0.00 0.00 0.00 0.00 0.000
R2F	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 1680.0000)
	0.00 0.00 0.00 0.00 0.00 0.000
R1F	(Forces reported at X = 4785.7005, Y = 1718.0496, Z = 1360.0000)
	1830000.00 0.00 0.00 0.00 0.00 -322080000
4F	(Forces reported at X = 4434.1225, Y = 1694.0082, Z = 1020.0000)
	1247800.00 0.00 0.00 0.00 0.000-219612800.0
3F	(Forces reported at X = 4596.8557, Y = 1683.1114, Z = 680.0000)
	844320.00 0.00 0.00 0.00 0.000-148600320.0
2F	(Forces reported at X = 5630.1007, Y = 1623.5942, Z = 340.0000)
	510540.00 0.00 0.00 0.00 0.000 -89855040.0

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AUTO SEISMIC USER LOADS

Case: EY1

AUTO SEISMIC INPUT DATA

Additional Eccentricity = 5%

SPECIFIED AUTO SEISMIC LOADS AT DIAPHRAGM CENTER OF MASS

STORY	DIAPHRAGM	FX	FY	MZ
RF	D1	0.00	0.00	0.000
R2F	D1	0.00	0.00	0.000
R1F	D1	0.00	1812430.00	0.000
4F	D1	0.00	1235810.00	0.000
3F	D1	0.00	836210.00	0.000
2F	D1	0.00	505630.00	0.000

AUTO SEISMIC CALCULATION RESULTS

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
RF	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 2020.0000)	0.00	0.00	0.00	0.000	0.000
R2F	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 1680.0000)	0.00	0.00	0.00	0.000	0.000
R1F	(Forces reported at X = 4785.7005, Y = 1718.0496, Z = 1360.0000)	0.00	1812430.00	0.00	0.000	0.000 727690645.0
4F	(Forces reported at X = 4434.1225, Y = 1694.0082, Z = 1020.0000)	0.00	1235810.00	0.00	0.000	0.000 550367983.5
3F	(Forces reported at X = 4596.8557, Y = 1683.1114, Z = 680.0000)	0.00	836210.00	0.00	0.000	0.000 407526943.5
2F	(Forces reported at X = 5630.1007, Y = 1623.5942, Z = 340.0000)	0.00	505630.00	0.00	0.000	0.000267655240.50

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AUTO SEISMIC USER LOADS
Case: EX2

AUTO SEISMIC INPUT DATA

Additional Eccentricity = -5%

SPECIFIED AUTO SEISMIC LOADS AT DIAPHRAGM CENTER OF MASS

STORY	DIAPHRAGM	FX	FY	MZ
RF	D1	0.00	0.00	0.000
R2F	D1	0.00	0.00	0.000
R1F	D1	1830000.00	0.00	0.000
4F	D1	1247800.00	0.00	0.000
3F	D1	844320.00	0.00	0.000
2F	D1	510540.00	0.00	0.000

AUTO SEISMIC CALCULATION RESULTS

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
RF	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 2020.0000)					
	0.00	0.00	0.00	0.000	0.000	0.000
R2F	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 1680.0000)					
	0.00	0.00	0.00	0.000	0.000	0.000
R1F	(Forces reported at X = 4785.7005, Y = 1718.0496, Z = 1360.0000)					
	1830000.00	0.00	0.00	0.000	0.000	322080000.0
4F	(Forces reported at X = 4434.1225, Y = 1694.0082, Z = 1020.0000)					
	1247800.00	0.00	0.00	0.000	0.000	219612800.00
3F	(Forces reported at X = 4596.8557, Y = 1683.1114, Z = 680.0000)					
	844320.00	0.00	0.00	0.000	0.000	148600320.00
2F	(Forces reported at X = 5630.1007, Y = 1623.5942, Z = 340.0000)					
	510540.00	0.00	0.00	0.000	0.000	89855040.00

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AUTO SEISMIC USER LOADS
Case: EY2

AUTO SEISMIC INPUT DATA

Additional Eccentricity = -5%

SPECIFIED AUTO SEISMIC LOADS AT DIAPHRAGM CENTER OF MASS

STORY	DIAPHRAGM	FX	FY	MZ
RF	D1	0.00	0.00	0.000
R2F	D1	0.00	0.00	0.000
R1F	D1	0.00	1812430.00	0.000
4F	D1	0.00	1235810.00	0.000
3F	D1	0.00	836210.00	0.000
2F	D1	0.00	505630.00	0.000

AUTO SEISMIC CALCULATION RESULTS

AUTO SEISMIC STORY FORCES

STORY	FX	FY	FZ	MX	MY	MZ
RF	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 2020.0000)					
	0.00	0.00	0.00	0.000	0.000	0.000
R2F	(Forces reported at X = 4287.0000, Y = 3270.0000, Z = 1680.0000)					
	0.00	0.00	0.00	0.000	0.000	0.000
R1F	(Forces reported at X = 4785.7005, Y = 1718.0496, Z = 1360.0000)					
	0.00	1812430.00	0.00	0.000	0.000	-727690645
4F	(Forces reported at X = 4434.1225, Y = 1694.0082, Z = 1020.0000)					
	0.00	1235810.00	0.00	0.000	0.000	-550367984
3F	(Forces reported at X = 4596.8557, Y = 1683.1114, Z = 680.0000)					
	0.00	836210.00	0.00	0.000	0.000	-407526944
2F	(Forces reported at X = 5630.1007, Y = 1623.5942, Z = 340.0000)					
	0.00	505630.00	0.00	0.000	0.000	-267655240.5

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R I G I D D I A P H R A G M A S S I G N M E N T S T O P O I N T O B J E C T S

STORY	DIAPHRAGM	POINT	POINT	POINT	POINT	POINT
R1F	D1	225	1	49	218	
4F	D1	1	225	49	218	
3F	D1	1	225	49	218	
2F	D1	1	225	49	218	

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S U P P O R T (R E S T R A I N T) D A T A

STORY	POINT	/-----RESTRAINED DOF's-----/					
		UX	UY	UZ	RX	RY	RZ
2F	1	Yes	Yes	Yes	Yes	Yes	Yes
2F	225	Yes	Yes	Yes	Yes	Yes	Yes
BASE	49	Yes	Yes	Yes	Yes	Yes	Yes
BASE	218	Yes	Yes	Yes	Yes	Yes	Yes

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U N C O U P L E D P O I N T S P R I N G A S S I G N M E N T S

STORY	POINT	UX	UY	UZ	RX	RY	RZ
2F	1	1000000.0000	1000000.0000	0.0000	0.0000	0.0000	0.0000
2F	225	1000000.0000	1000000.0000	0.0000	0.0000	0.0000	0.0000

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P A N E L Z O N E A S S I G N M E N T S T O P O I N T S (PANEL ZONE PROPERTIES ELASTIC FROM COLUMN PROPERTIES)

STORY	POINT	PZ CONNECT	AXES FROM	DBLR PLATE
R1F	1	Beam-Col	From column	N/A
R1F	49	Beam-Col	From column	N/A
R1F	218	Beam-Col	From column	N/A
R1F	225	Beam-Col	From column	N/A
4F	1	Beam-Col	From column	N/A

4F	49	Beam-Col	From column	N/A
4F	218	Beam-Col	From column	N/A
4F	225	Beam-Col	From column	N/A
3F	1	Beam-Col	From column	N/A
3F	49	Beam-Col	From column	N/A
3F	218	Beam-Col	From column	N/A
3F	225	Beam-Col	From column	N/A
2F	1	Beam-Col	From column	N/A
2F	49	Beam-Col	From column	N/A
2F	218	Beam-Col	From column	N/A
2F	225	Beam-Col	From column	N/A
BASE	49	Beam-Col	From column	N/A
BASE	218	Beam-Col	From column	N/A

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POINT OBJECT ASSIGNMENTS SUMMARY TABLE 1 OF 2

STORY	POINT	DIAPHRAGM	RESTRAINTS	SPRING	LINK	PANEL ZONE	ADDED MASS
R1F	1	D1	No	None	None	None	Yes
R1F	49	D1	No	None	None	None	Yes
R1F	218	D1	No	None	None	None	Yes
R1F	225	D1	No	None	None	None	Yes
4F	1	D1	No	None	None	None	Yes
4F	49	D1	No	None	None	None	Yes
4F	218	D1	No	None	None	None	Yes
4F	225	D1	No	None	None	None	Yes
3F	1	D1	No	None	None	None	Yes
3F	49	D1	No	None	None	None	Yes
3F	218	D1	No	None	None	None	Yes
3F	225	D1	No	None	None	None	Yes
2F	1	D1	Yes	Uncoupled	None	None	Yes
2F	49	D1	No	None	None	None	Yes
2F	218	D1	No	None	None	None	Yes
2F	225	D1	Yes	Uncoupled	None	None	Yes
BASE	49	From Area	Yes	None	None	None	Yes
BASE	218	From Area	Yes	None	None	None	Yes

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POINT OBJECT ASSIGNMENTS SUMMARY TABLE 2 OF 2

STORY POINT PT FORCE GRND DISPL PT TEMP

There are no items to be printed in this table.

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FRAME SECTION ASSIGNMENTS TO LINE OBJECTS

STORY LEVEL	LINE ID	LINE TYPE	SECTION TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN PROCEDURE	DESIGN SECTION
R1F	C68	Column	Rectangular	None	C1	Conc Frame	C1
4F	C68	Column	Rectangular	None	C1	Conc Frame	C1
3F	C68	Column	Rectangular	None	C1	Conc Frame	C1
2F	C68	Column	Rectangular	None	C1	Conc Frame	C1

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CARDINAL POINT ASSIGNMENTS TO LINE OBJECTS

STORY LEVEL	LINE ID	LINE TYPE	CARDINAL POINT	MIRROR ABOUT 2	TRANSFORM STIFFNESS
R1F	C68	Column	10	No	No
4F	C68	Column	10	No	No
3F	C68	Column	10	No	No

2F C68 Column 10 No No

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END OFFSET (ALONG LENGTH) ASSIGNMENTS TO LINE OBJECTS

STORY LEVEL	LINE ID	LINE TYPE	OFFSET TYPE	I END OFFSET	J END OFFSET	RIGID ZONE FACTOR
R1F	C68	Column	Automatic	0.0000	80.0000	0.0000
4F	C68	Column	Automatic	0.0000	80.0000	0.0000
3F	C68	Column	Automatic	0.0000	80.0000	0.0000
2F	C68	Column	Automatic	0.0000	80.0000	0.0000

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OUTPUT STATION ASSIGNMENTS TO LINE OBJECTS

STORY LEVEL	LINE ID	LINE TYPE	MAX STATION SPACING	MIN NUMBER STATIONS
R1F	C68	Column	N/A	3
4F	C68	Column	N/A	3
3F	C68	Column	N/A	3
2F	C68	Column	N/A	3

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LOCAL AXES ASSIGNMENTS TO LINE OBJECTS

STORY	LINE	LINE TYPE	ANGLE
R1F	C68	Column	0.0000
4F	C68	Column	0.0000
3F	C68	Column	0.0000
2F	C68	Column	0.0000

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LINE AUTOMESH ASSIGNMENTS

STORY	LINE	LINE TYPE	AUTOMESH
R1F	C68	Column	P/L/E
4F	C68	Column	P/L/E
3F	C68	Column	P/L/E
2F	C68	Column	P/L/E

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LINE OBJECT ASSIGNMENTS SUMMARY TABLE 1 OF 3

STORY LEVEL	LINE ID	LINE TYPE	AUTO SELECT SECTION	ANALYSIS SECTION	DESIGN SECTION	AUTO MESH	LINE LENGTH	AXES ANGLE
R1F	C68	Column	None	C1	Trim(Sectio	P/L/E	340.000	0.0000
4F	C68	Column	None	C1	Trim(Sectio	P/L/E	340.000	0.0000
3F	C68	Column	None	C1	Trim(Sectio	P/L/E	340.000	0.0000
2F	C68	Column	None	C1	Trim(Sectio	P/L/E	340.000	0.0000

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LINE OBJECT ASSIGNMENTS SUMMARY TABLE 2 OF 3

STORY LEVEL	LINE ID	END RELEASES	USER OFFSETS	PROPERTY MODIFIERS	PIER LABEL	SPANDREL LABEL	MIN NUMBER STATIONS	MAX STATION SPACING
R1F	C68	None	None	None	None	N/A	3	N/A
4F	C68	None	None	None	None	N/A	3	N/A

3F	C68	None	None	None	None	N/A	3	N/A
2F	C68	None	None	None	None	N/A	3	N/A

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LINE OBJECT ASSIGNMENTS SUMMARY TABLE 3 OF 3

STORY LEVEL	LINE ID	LINK PROPERTY	NONLINEAR HINGES	LINE SPRINGS	ADDITIONAL MASS	POINT LOADS	DISTRIBUTED LOADS	TEMPERATURE LOADS
RIF	C68	None	None	None	None	None	None	None
4F	C68	None	None	None	None	None	None	None
3F	C68	None	None	None	None	None	None	None
2F	C68	None	None	None	None	None	None	None

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AREA OBJECT ASSIGNMENTS SUMMARY TABLE 3 OF 3

STORY LEVEL	AREA ID	AREA TYPE	PIER LABEL	SPANDREL LABEL	SPANDREL STORY	STIFFNESS MODIFIERS	AREA SPRINGS	ADDED MASS
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There are no items to be printed in this table.

十三、載重組合：(採用『混凝土結構設計規範』第二章之規定)

符號說明 —

D = 靜載重，或其相關之內彎矩與力。

L = 活載重，或其相關之內彎矩與力。

L_r = 屋頂活載重，或其相關之內彎矩與力。

E = 地震力，或其相關之內彎矩與力。

W = 風力，或其相關之內彎矩與力。

H = 土壤力，因土壤、土壤中之水或其他物質之重量及壓力所造成之載重，或其相關之內彎矩與力。

T = 溫度、潛變、乾縮與不等沉陷等之效應，或其相關之內彎矩與力。

F = 流體力，因密度及高度明確之液體其重量及壓力所造成之載重，或其相關之內彎矩與力。

組合說明 —

(1) $U = 1.4(D+F)$

(2) $U = 1.2(D+F+T) + 1.6(L+H) + 0.5(L_r \text{ 或 } S \text{ 或 } R)$

(3) $U = 1.2D + 1.6(L_r \text{ 或 } S \text{ 或 } R) + (1.0L \text{ 或 } 0.8W)$

(4) $U = 1.2D + 1.6W + 1.0L + 0.5(L_r \text{ 或 } S \text{ 或 } R)$

(5) $U = 1.2D + 1.0E + 1.0L + 0.2S$

(6) $U = 0.9D + 1.6W + 1.6H$

(7) $U = 0.9D + 1.0E + 1.6H$

以上各種組合遇下列情況，可作調整：

(a) 除供公眾使用之場所、停車場或活載種 L 超過 500 kgf/m^2 之區域外，上述(3)、(4)及(5)式中： $1.0L$ 可減至 $0.5L$ 。

(b) 風力不受方向因數折減時，上述(4)及(6)中： $1.6W$ 可減為 $1.3W$ 。
土壤力 H 引起之構材內力若有抵消風力或地震力引致之構材內力時，上述(6)及(7)中 H 項應予不計。因其他力作用下對土壤產生反力，該反力不得計入 H ，但構材設計時該項反力須予計入。
風力 W 或地震力 E 引起之土壤力 H ，如其方向與 W 或 E 相反時，上述(6)及(7)中 H 項應予不計。因其他力所引起之土壤抵抗力不得計入 H ，但於構材設計時應考慮土壤抵抗力。

十四、構件配筋資料：(設計時採用『混凝土結構設計規範』第二章之規定之載重組合)

*
* FRAME 1--BEAM DESIGN *
*

	5- 5 B1 (R)				5- 5 B2 (R)				5- 5 B3 (R)				
F-A L 5*	(50X 80, 80)	L= 960		(50X 80, 80)	L=1090		(50X 80, 80)	L= 840					
TOP --AS*	24.85	.00	26.37	29.27	.00	28.92	23.92	.00	22.91				
BOT. --AS*	12.23	12.72	12.23	12.23	13.82	12.23	12.23	12.23	12.23				
TOP 1 *	5-#8	3-#8	4-#8	4-#8	4-#8	4-#8	4-#8	3-#8	5-#8				
TOP 2 *			2-#8	2-#8			2-#8						
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8				
Vu-STRESS*	8.95	6.73	9.29	10.96	7.65	10.92	8.72	6.70	8.54				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	0	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 80				

	5- 5 B4 (R)				5- 5 B5 (R)				5- 5 B5a (R)				
F-A L 5*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840					
TOP --AS*	23.06	.00	23.18	23.08	.00	23.17	23.19	5.83	23.31				
BOT. --AS*	12.23	12.23	12.23	12.23	12.23	12.23	12.23	12.23	12.23				
TOP 1 *	5-#8	3-#8	5-#8	5-#8	3-#8	5-#8	5-#8	3-#8	5-#8				
TOP 2 *													
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8				
Vu-STRESS*	8.61	6.61	8.63	8.61	6.61	8.63	8.52	6.58	8.60				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	80	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 0*				

B5 -B5

	5- 5 B6 (R)				5- 5 B7 (R)					
F-A L 5*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840					
TOP --AS*	22.68	.00	23.13	22.91	.00	18.02				
BOT. --AS*	12.23	12.23	12.23	12.23	12.23	12.23				
TOP 1 *	5-#8	3-#8	5-#8	5-#8	3-#8	4-#8				
TOP 2 *										
TOP 3 *										
WEB *										
BOT. 3 *										
BOT. 2 *										
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8				
Vu-STRESS*	8.52	6.58	8.60	8.69	6.62	7.67				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	80	80	80, 80	80 80	80 80	80 0*				

-B5

	4- 4 B1				4- 4 B2				4- 4 B3				
F-A L 4*	(50X 80, 80)	L= 960		(50X 80, 80)	L=1090		(50X 80, 80)	L= 840					
TOP --AS*	32.18	8.04	32.01	34.11	8.53	33.95	31.38	7.85	31.00				
BOT. --AS*	16.09	12.23	16.00	17.06	12.23	16.97	16.89	12.23	16.82				
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10				
TOP 2 *			2-#8	2-#8			2-#8	2-#8					
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10				
Vu-STRESS*	13.27	10.32	13.33	15.85	12.84	15.83	14.01	11.52	13.95				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	0	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 80				

	4- 4 B4				4- 4 B5				4- 4 B5a				
F-A L 4*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840					
TOP --AS*	31.00	7.75	30.99	31.01	7.75	30.99	31.02	7.95	31.82				
BOT. --AS*	16.83	12.23	16.83	16.83	12.23	16.83	17.19	12.23	17.71				
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10				
TOP 2 *													
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10				
Vu-STRESS*	13.95	11.52	13.95	13.95	11.52	13.95	13.95	13.95	13.95				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15				
BCC,CCB *	80	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 80				

B5 -B5

	4- 4 B6				4- 4 B7					
F-A L 4*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840					
TOP --AS*	30.43	7.65	30.58	29.35	7.34	26.96				
BOT. --AS*	16.35	12.23	16.35	14.68	12.23	14.33				
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10				
TOP 2 *										
TOP 3 *										
WEB *										
BOT. 3 *										
BOT. 2 *										
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10				
Vu-STRESS*	12.92	10.52	12.95	13.42	10.48	12.80				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	80	80	80, 80	80 80	80 80	80 0*				

-B5

	3- 3 B1				3- 3 B2				3- 3 B3				
F-A L 3*	(50X 80, 80)	L= 960		(50X 80, 80)	L=1090		(50X 80, 80)	L= 840					
TOP --AS*	36.80	9.20	36.55	37.63	9.41	37.60	36.10	9.02	35.65				
BOT. --AS*	18.40	12.23	18.28	18.81	12.23	18.80	21.34	12.23	21.23				
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10				
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8				
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10				
Vu-STRESS*	14.95	12.03	15.03	15.83	12.84	15.83	14.97	12.50	14.92				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	0	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 80				

	3- 3 B4				3- 3 B5				3- 3 B5a				
F-A L 3*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840					
TOP --AS*	35.53	8.91	35.62	35.52	8.88	35.52	35.98	9.27	37.10				
BOT. --AS*	21.14	12.23	21.11	21.13	12.23	21.10	21.78	12.23	22.61				
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10				
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8				
TOP 3 *													
WEB *													
BOT. 3 *													
BOT. 2 *													
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10				
Vu-STRESS*	14.90	12.50	14.92	14.91	12.50	14.92	14.91	12.50	14.92				
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15				
BCC,CCB *	80	80	80, 80	80 80	80 80	80 80	80 80	80 80	80 80				

B5 -B5

	3- 3 B6					3- 3 B7					3- 3 B7a			
F-A L 3*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840
TOP --AS*	34.89	8.79	35.161	33.71	8.43	30.281	30.21	8.43	25.281					
BOT. --AS*	20.61	12.23	20.601	18.00	12.23	18.131	18.00	12.23	18.131					
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101					
TOP 2 *	2-#8		2-#8		2-#8									
TOP 3 *														
WEB *														
BOT. 3 *														
BOT. 2 *														
BOT. 1 *	3-#10	3-#10	3-#101	3-#10	3-#10	3-#101	3-#10	3-#10	3-#101					
Vu-STRESS*	14.87	12.50	14.921	14.57	12.42	13.781	14.57	12.42	13.781					
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@15	1-#4@20	1-#4@1511-#4@15					
BCC,CCB *	80 80	80, 80	80 801	80 80	80, 80	80 801	80 80	80, 80	80 801					

-B5

	3- 3 B7b			
F-A L 3*	(50X 80, 80)	L= 840	*	
TOP --AS*	30.21	8.43	25.28*	
BOT. --AS*	18.00	12.23	18.13*	
TOP 1 *	4-#10	4-#10	4-#10*	
TOP 2 *			*	
TOP 3 *			*	
WEB *			*	
BOT. 3 *			*	
BOT. 2 *			*	
BOT. 1 *	3-#10	3-#10	3-#10*	
Vu-STRESS*	14.57	12.42	13.78*	
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15*	
BCC,CCB *	80 80	80, 0	80 0*	

	2- 2 B7b			
F-A L 2*	(50X 80, 80)	L= 840	*	
TOP --AS*	24.99	.00	23.33*	
BOT. --AS*	12.23	12.23	12.23*	
TOP 1 *	4-#10	3-#10	4-#10*	
TOP 2 *			*	
TOP 3 *			*	
WEB *			*	
BOT. 3 *			*	
BOT. 2 *			*	
BOT. 1 *	4-#8	4-#8	4-#8 *	
Vu-STRESS*	8.69	6.87	8.40*	
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15*	
BCC,CCB *	80 80	80, 80	80 0*	

	1- 1 B3 (F)					1- 1 B4 (F)					1- 1 B5 (F)			
F-A L 1*	(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840
TOP --AS*	16.21	32.42	16.211	16.21	32.45	16.211	16.21	32.45	16.211	16.21	32.45	16.21	32.45	16.21*
BOT. --AS*	32.45	32.45	32.451	32.45	.00	32.451	32.45	.00	32.451	32.45	.00	32.45	.00	32.45*
TOP 1 *	4-#10	4-#10	3-#101	3-#10	4-#10	3-#101	3-#10	4-#10	3-#101	3-#10	4-#10	3-#10	4-#10	3-#10*
TOP 2 *														*
TOP 3 *														*
WEB *	(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)	*
BOT. 3 *														*
BOT. 2 *														*
BOT. 1 *	4-#10	4-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#10	3-#10	4-#10*
Vu-STRESS*	6.32	4.47	5.501	5.60	4.02	5.861	5.70	4.17	6.02*					
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@15*
BCC,CCB *	0 80	0, 80	0 2501250	80	0, 80	0 2501250	80	0, 80	0 2501250	80	0, 80	0 2501250	80	0 250*

B5

	2- 2 B1 (F)					2- 2 B2 (F)					2- 2 B3			
F-A L 2*	(60X250,250)	L= 960		(60X250,250)	L=1090		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840
TOP --AS*	32.45	32.45	16.211	16.21	32.45	16.211	26.40	.00	25.401					
BOT. --AS*	32.45	.00	36.331	36.03	.00	32.451	12.23	12.23	12.231					
TOP 1 *	4-#10	4-#10	3-#101	3-#10	4-#10	4-#101	4-#10	3-#10	4-#101					
TOP 2 *														
TOP 3 *														
WEB *	(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)									
BOT. 3 *														
BOT. 2 *														
BOT. 1 *	4-#10	4-#10	4-#101	4-#10	3-#10	4-#101	4-#8	4-#8	4-#8					
Vu-STRESS*	5.32	6.60	9.031	8.66	6.54	7.821	8.88	7.07	8.711					
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@25					
BCC,CCB *	0 80	0, 80	0 2501250	80	0, 80	80 801250	80	80, 80	80 801					

	1- 1 B5a (F)					1- 1 B6 (F)					1- 1 B7 (F)			
F-A L 1*	(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840
TOP --AS*	16.21	32.45	16.211	16.21	32.45	16.211	16.21	32.45	16.211	16.21	32.45	16.21	32.45	16.211
BOT. --AS*	32.45	.00	32.451	32.45	.00	32.451	32.45	.00	32.451	32.45	.00	32.45	.00	32.451
TOP 1 *	3-#10	4-#10	3-#101	3-#10	4-#10	3-#101	3-#10	4-#10	3-#101	3-#10	4-#10	3-#10	4-#10	3-#101
TOP 2 *														
TOP 3 *														
WEB *	(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)	
BOT. 3 *														
BOT. 2 *														
BOT. 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#10	3-#10	4-#101
Vu-STRESS*	5.77	3.92	5.611	5.38	4.22	6.061	7.31	5.46	4.501					
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@1511-#4@15	1-#4@25	1-#4@151
BCC,CCB *	250 80	0, 80	0 2501250	80	0, 80	0 2501250	80	0, 80	0 2501250	80	0, 80	0 2501250	80	0 2501

-B5

	2- 2 B4					2- 2 B5					2- 2 B5a			
F-A L 2*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840
TOP --AS*	25.56	.00	25.561	25.58	.00	25.66*	26.35	6.59	25.10*					
BOT. --AS*	12.23	12.23	12.231	12.23	12.23	12.23*	13.17	12.23	13.04*					
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#10*	4-#10	3-#10	4-#10*					
TOP 2 *						*			*					
TOP 3 *						*			*					
WEB *						*			*					
BOT. 3 *						*			*					
BOT. 2 *						*			*					
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8 *	4-#8	4-#8	4-#80*					
Vu-STRESS*	8.77	6.95	8.771	8.76	6.96	8.78*	13.42	10.52	12.95*					
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20					
BCC,CCB *	80 80	80, 80	80 801	80 80	80, 80	80 80*	80 80	80, 80	80 0*					

B5 -B5

	2- 2 B6					2- 2 B7					2- 2 B7a			
F-A L 2*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840
TOP --AS*	25.02	.00	25.051	24.99	.00	23.331	25.02	.00	25.051					
BOT. --AS*	12.23	12.23	12.231	12.23	12.23	12.231	12.23	12.23	12.231					
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101					
TOP 2 *														
TOP 3 *														
WEB *														
BOT. 3 *														
BOT. 2 *														
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8					
Vu-STRESS*	8.65	6.84	8.661	8.69	6.87	8.401	8.65	6.84	8.661					
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20	1-#4@1511-#4@15	1-#4@20					
BCC,CCB *	80 80	80, 80	80 801	80 80	80, 80	80 801	80 80	80, 80	80 801					

-B5

	1- 1 B7a (F)					1- 1 B7b (F)			
F-A L 1*	(60X250,250)	L= 840		(60X250,250)	L= 840		(60X250,250)	L= 840	
TOP --AS*	16.21	32.45	16.211	16.21	32.45	16.211	16.21	32.45	16.211
BOT. --AS*	32.45	.							

 *
 *
 * FRAME 2--BEAM DESIGN *
 *

	5- 5 B8 (R)				5- 5 B9 (R)				5- 5 B10 (R)			
F-B L 5*	(50X 80, 80) L= 960		(50X 80, 80) L=1090		(50X 80, 80) L= 840							
TOP --AS*	32.22	.00	34.95	41.10	.00	40.51	30.22	.00	28.62			
BOT. --AS*	12.23	19.94	12.23	6.79	20.40	6.79	12.23	15.09	12.23			
TOP 1 *	5-#8	3-#8	5-#8	5-#8	3-#8	5-#8	5-#8	3-#8	4-#8			
TOP 2 *	2-#8		2-#8	4-#8		4-#8	2-#8		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	5-#8	4-#8	4-#8	4-#8	4-#8			
Vu-STRESS*	13.80	9.10	14.30	17.15	12.23	17.08	11.98	8.73	11.74			
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

	4- 4 B14				4- 4 CB14			
F-B L 4*	(50X 80, 80) L= 840		(50X 80, 80) L= 260	*				
TOP --AS*	35.59	9.14	36.57	35.59	9.14	36.57		
BOT. --AS*	17.79	13.52	18.28	17.79	13.52	18.28		
TOP 1 *	4-#10	3-#10	4-#10	4-#10	4-#10	4-#10		
TOP 2 *	2-#8		2-#8	2-#8				
TOP 3 *								
WEB *								
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10		
Vu-STRESS*	18.39	14.83	18.48	18.39	14.83	18.48		
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@12	1-#4@12	1-#4@12		
BCC,CCB *	80 80	80, 80	80 80	80 80	80, 0	0 0		

	5- 5 B11 (R)				5- 5 B12 (R)				5- 5 B13 (R)			
F-B L 5*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840							
TOP --AS*	28.88	.00	29.03	28.99	.00	29.03	28.62	.00	28.79			
BOT. --AS*	12.23	15.34	12.23	12.23	15.42	12.23	12.23	15.28	12.23			
TOP 1 *	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8			
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8			
Vu-STRESS*	11.76	8.59	11.81	11.85	8.63	11.80	11.76	8.54	11.81			
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15			
BCC,CCB *	80 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

B12 -B12

	3- 3 B8				3- 3 B9				3- 3 B10			
F-B L 3*	(50X 80, 80) L= 960		(50X 80, 80) L=1090		(50X 80, 80) L= 840							
TOP --AS*	44.04	11.01	43.87	48.24	12.06	48.22	41.46	10.37	40.86			
BOT. --AS*	22.02	17.13	21.94	24.12	17.67	24.11	20.73	13.40	20.43			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10			
TOP 2 *	2-#10		2-#10	2-#10		2-#10	2-#10		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10			
Vu-STRESS*	20.00	15.48	20.11	21.92	17.55	21.93	18.57	15.79	18.48			
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@15	1-#4@15	2-#4@15	1-#4@12	1-#4@20	1-#4@12			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

	5- 5 B14 (R)			
F-B L 5*	(50X 80, 80) L= 840	*		
TOP --AS*	29.01	.00	28.31	*
BOT. --AS*	12.23	15.66	12.23	*
TOP 1 *	4-#8	3-#8	4-#8	*
TOP 2 *	2-#8		2-#8	*
TOP 3 *				*
WEB *				*
BOT. 3 *				*
BOT. 2 *				*
BOT. 1 *	4-#8	4-#8	4-#8	*
Vu-STRESS*	11.96	8.76	11.75	*
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	*
BCC,CCB *	80 80	80, 80	80 0	

	3- 3 B11				3- 3 B12				3- 3 B13			
F-B L 3*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840							
TOP --AS*	40.77	10.21	40.84	40.74	10.21	40.83	40.22	10.06	40.23			
BOT. --AS*	20.39	13.40	20.42	21.49	13.42	21.45	21.49	13.44	21.46			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10			
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10			
Vu-STRESS*	18.46	14.83	18.48	18.47	14.83	18.48	18.47	14.83	18.48			
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@12	1-#4@20	1-#4@12			
BCC,CCB *	80 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

B12 -B12

	4- 4 B8				4- 4 B9				4- 4 B10			
F-B L 4*	(50X 80, 80) L= 960		(50X 80, 80) L=1090		(50X 80, 80) L= 840							
TOP --AS*	39.19	9.80	39.20	44.59	11.15	44.36	36.67	9.17	36.18			
BOT. --AS*	19.60	17.32	19.60	22.29	17.74	22.18	18.33	13.46	18.09			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10			
TOP 2 *	2-#8		2-#10	2-#10		2-#10	2-#10		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10			
Vu-STRESS*	19.18	14.66	19.28	21.96	17.55	21.93	18.56	14.83	18.48			
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@15	2-#4@15	1-#4@12	1-#4@20	1-#4@12	1-#4@12			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

	3- 3 B14			
F-B L 3*	(50X 80, 80) L= 840	*		
TOP --AS*	40.60	10.43	41.73	*
BOT. --AS*	22.13	13.41	22.96	*
TOP 1 *	4-#10	3-#10	4-#10	*
TOP 2 *	2-#8		2-#8	*
TOP 3 *				*
WEB *				*
BOT. 3 *				*
BOT. 2 *				*
BOT. 1 *	3-#10	3-#10	3-#10	*
Vu-STRESS*	19.39	15.79	19.43	*
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	*
BCC,CCB *	80 80	80, 80	80 0	

	4- 4 B11				4- 4 B12				4- 4 B13			
F-B L 4*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840							
TOP --AS*	36.15	9.04	36.16	36.15	9.04	36.16	35.70	8.95	35.78			
BOT. --AS*	18.08	13.48	18.08	18.08	13.47	18.08	17.85	13.47	17.89			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10			
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8			
TOP 3 *												
WEB *												
BOT. 3 *												
BOT. 2 *												
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10			
Vu-STRESS*	18.47	14.83	18.48	18.48	14.83	18.48	18.45	14.83	18.48			
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@20	1-#4@12	1-#4@12			
BCC,CCB *	80 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80			

B12 -B12

	2- 2 B8 (F)				2- 2 B9 (F)				2- 2 B10			
F-B L 2*	(60X250,250) L= 960		(60X250,250) L=1090		(50X 80, 80) L= 840							
TOP --AS*	32.45	48.68	16.21	16.21	40.40	16.21	31.76	.00	30.19			
BOT. --AS*	32.45	.00	48.68	48.68	.00	48.68	12.23	12.97	12.23			
TOP												

*
*
* FRAME 3--BEAM DESIGN *
*

	2- 2 B11				2- 2 B12				2- 2 B13			
F-B L 2*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840	*	(50X 80, 80) L= 840					
TOP --AS*	30.46	.00	30.531	30.69	.00	30.54*	30.07	.00	30.191			
BOT. --AS*	12.23	13.22	12.231	12.23	13.31	12.23*	12.23	13.21	12.231			
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#10*	4-#10	3-#10	4-#101			
TOP 2 *						*						
TOP 3 *						*						
WEB *						*						
BOT. 3 *						*						
BOT. 2 *						*						
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8 *	4-#8	4-#8	4-#8			
Vu-STRESS*	11.36	8.64	11.371	11.44	8.70	11.37*	11.27	8.56	11.291			
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511	1-#4@15	1-#4@20	1-#4@151*	1-#4@15	1-#4@20	1-#4@151				
BCC,CCB *	80	80	80, 80	80	801	80	80, 80	80	801			

B12 -B12

	2- 2 B14				2- 2 B14a				2- 2 B14b			
F-B L 2*	(50X 80, 80) L= 840		(50X 80, 80) L= 840		(80X 80, 80) L= 840	*	(80X 80, 80) L= 840	*				
TOP --AS*	30.07	.00	30.191	30.07	.00	30.191	30.83	.00	29.67*			
BOT. --AS*	12.23	13.21	12.231	12.23	13.21	12.231	12.33	13.51	13.18*			
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101	5-#10	3-#10	5-#10*			
TOP 2 *									*			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *									*			
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	5-#8	4-#8	5-#8 *			
Vu-STRESS*	11.27	8.56	11.291	11.27	8.56	11.291	11.56	8.83	11.23*			
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511	1-#4@15	1-#4@20	1-#4@1511	1-#4@15	1-#4@15	1-#4@15				
BCC,CCB *	80	80	80, 80	80	801	80	80, 80	80	0*			

	1- 1 B10 (F)			1- 1 B11 (F)			1- 1 B12 (F)		
F-B L 1*	(60X250,250) L= 840		(60X250,250) L= 840		(60X250,250) L= 840		(60X250,250) L= 840	*	
TOP --AS*	16.21	32.45	16.211	16.21	32.45	16.211	16.21	32.45	
BOT. --AS*	32.45	32.45	32.451	32.45	.00	33.401	34.19	.00	
TOP 1 *	4-#10	6-#10	3-#101	3-#10	6-#10	3-#101	3-#10	6-#10	
TOP 2 *								*	
TOP 3 *								*	
WEB *	(7-# 5E.F.)			(7-# 5E.F.)			(7-# 5E.F.)	*	
BOT. 3 *								*	
BOT. 2 *								*	
BOT. 1 *	4-#10	4-#10	4-#101	4-#10	3-#10	5-#101	5-#10	3-#10	
Vu-STRESS*	12.04	8.41	10.391	10.56	7.54	11.171	11.44	7.81	
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511	1-#4@15	1-#4@25	1-#4@1511	1-#4@15	1-#4@25	1-#4@15*	
BCC,CCB *	0	80	0	2501250	80	0	80	0	

B12

	1- 1 B12a (F)			1- 1 B13 (F)			1- 1 B14 (F)		
F-B L 1*	(60X250,250) L= 840		(60X250,250) L= 840		(60X250,250) L= 840		(60X250,250) L= 840		
TOP --AS*	16.21	32.45	16.211	16.21	32.45	16.211	16.21	40.05	
BOT. --AS*	33.04	.00	32.451	32.45	.00	40.611	40.44	.00	
TOP 1 *	3-#10	4-#10	3-#101	3-#10	4-#10	3-#101	3-#10	4-#10	
TOP 2 *									
TOP 3 *									
WEB *	(7-# 5E.F.)			(7-# 5E.F.)			(7-# 5E.F.)		
BOT. 3 *									
BOT. 2 *									
BOT. 1 *	5-#10	3-#10	5-#101	5-#10	3-#10	5-#101	5-#10	3-#10	
Vu-STRESS*	10.99	5.36	10.691	10.26	7.90	11.531	13.82	10.18	
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511	1-#4@15	1-#4@25	1-#4@1511	1-#4@15	1-#4@25	1-#4@151	
BCC,CCB *	250	80	0	2501250	80	0	80	0	

-B12

	1- 1 B14a (F)			1- 1 B14b (F)		
F-B L 1*	(60X250,250) L= 840		(60X250,250) L= 840	*	(60X250,250) L= 840	*
TOP --AS*	16.21	32.45	16.211	16.21	40.05	32.45*
BOT. --AS*	32.45	.00	40.611	40.44	.00	32.45*
TOP 1 *	3-#10	4-#10	3-#101	3-#10	5-#10	4-#10*
TOP 2 *						*
TOP 3 *						*
WEB *	(7-# 5E.F.)			(7-# 5E.F.)		*
BOT. 3 *						*
BOT. 2 *						*
BOT. 1 *	5-#10	3-#10	5-#101	5-#10	4-#10	4-#10*
Vu-STRESS*	10.26	7.90	11.531	13.82	10.18	8.57*
STIRRUPS*1-#4@15	1-#4@25	1-#4@1511	1-#4@15	1-#4@25	1-#4@15	
BCC,CCB *	250	80	0	2501250	80	0

	5- 5 B15 (R)			5- 5 B16 (R)			5- 5 B17 (R)		
F-D L 5*	(50X 80, 80) L= 960		(50X 80, 80) L=1090		(50X 80, 80) L= 840				
TOP --AS*	31.92	.00	34.671	40.83	.00	40.261			
BOT. --AS*	12.23	19.94	12.231	6.79	20.40	6.791			
TOP 1 *	5-#8	3-#8	5-#8	5-#8	3-#8	5-#8			
TOP 2 *	2-#8		2-#8	4-#8		2-#8			
TOP 3 *									
WEB *									
BOT. 3 *									
BOT. 2 *									
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	5-#8	4-#8			
Vu-STRESS*	13.80	9.09	14.301	17.14	12.23	17.081			
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511	1-#4@15	1-#4@20	1-#4@1511	1-#4@15			
BCC,CCB *	0	80	80, 80	80	801	80			

	5- 5 B18 (R)			5- 5 B19 (R)			5- 5 B20 (R)		
F-D L 5*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840	*			
TOP --AS*	28.57	.00	28.731	28.61	.00	28.72*			
BOT. --AS*	12.23	15.34	12.231	12.23	15.31	12.23*			
TOP 1 *	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8			
TOP 2 *	2-#8		2-#8	2-#8		2-#8			
TOP 3 *									
WEB *									
BOT. 3 *									
BOT. 2 *									
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8			
Vu-STRESS*	11.76	8.53	11.811	11.77	8.52	11.80*			
STIRRUPS*1-#4@15	1-#4@20	1-#4@1511	1-#4@15	1-#4@20	1-#4@15*1	1-#4@15			
BCC,CCB *	80	80	80, 80	80	801	80			

B19 -B19

	5- 5 B21 (R)			5- 5 CB21 (R)		
F-D L 5*	(50X 80, 80) L= 840	*	(50X 80, 80) L= 260	*		
TOP --AS*	28.99	.00	28.25*	18.99	9.11	
BOT. --AS*	12.23	15.66	12.23*	12.23	6.75	
TOP 1 *	4-#8	3-#8	4-#8	4-#8	4-#8	
TOP 2 *	2-#8		2-#8	*	*	
TOP 3 *				*	*	
WEB *				*	*	
BOT. 3 *				*	*	
BOT. 2 *				*	*	
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	
Vu-STRESS*	11.97	8.76	11.75*	11.97	8.76	
STIRRUPS*1-#4@15	1-#4@20	1-#4@15*1	1-#4@15	1-#4@15	1-#4@15*	
BCC,CCB *	80	80	80	0*	0	

	4- 4 B15			4- 4 B16			4- 4 B17		
F-D L 4*	(50X 80, 80) L= 960		(50X 80, 80) L=1090		(50X 80, 80) L= 840				
TOP --AS*	38.69	9.69	38.741	44.15	11.04	43.951			
BOT. --AS*	19.35	17.32	19.371	22.07	17.74	21.981			
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#101			
TOP 2 *	2-#8		2-#101	2-#10		2-#8			
TOP 3 *									
WEB *									
BOT. 3 *									
BOT. 2 *									
BOT. 1 *	3-#10	3-#10	3-#101	3-#10	3-#10	3-#101			
Vu-STRESS*	19.18	14.66	19.281	21.96	17.55	21.931			
STIRRUPS*1-#4@12	1-#4@20	1-#4@1212	1-#4@15	1-#4@15	2-#4@1511	1-#4@12			
BCC,CCB *	0	80	80, 80	80	801	80			

	4- 4 B18			4- 4 B19			4- 4 B20		
F-D L 4*	(50X 80, 80) L= 840		(50X 80, 80) L= 840	*	(50X 80, 80) L= 840	*			
TOP --AS*	35.62	8.92	35.661	35.61	8.92	35.67*			
BOT. --AS*	17.81	13.48	17.831	17.81	13.47	17.83*			
TOP 1 *	4-#10	3-#10	4-#101	4-#10	3-#10	4-#10*			
TOP 2 *	2-#8		2-#8	2-#8		2-#8			
TOP 3 *									
WEB *									
BOT. 3 *									
BOT. 2 *									
BOT. 1 *	3-#10	3-#10	3-#101	3-#10	3-#10	3-#10*			
Vu-STRESS*	18.47	14.83	18.481	18.46	14.83	18.48*			
STIRRUPS*1-#4@12	1-#4@20	1-#4@1211	1-#4@12	1-#4@20	1-#4@12*1	1-#4@12			
BCC,CCB *	80	80	80, 80	80	801	80			

B19 -B19

4- 4 B21
F-D L 4* (50X 80, 80) L= 840 *
TOP --AS* 35.52 9.11 36.43*
BOT.--AS* 17.76 13.52 18.22*
TOP 1 * 4-#10 3-#10 4-#10*
TOP 2 * 2-#8 2-#8 *
TOP 3 * * *
WEB * * *
BOT. 3 * * *
BOT. 2 * * *
BOT. 1 * 3-#10 3-#10 3-#10*
Vu-STRESS* 18.41 14.83 18.48*
STIRRUPS*1-#4@12 1-#4@20 1-#4@12*
BCC,CCB * 80 80 80, 80 80 0*

2- 2 B18 2- 2 B19 2- 2 B20
F-D L 2* (50X 80, 80) L= 840 | (50X 80, 80) L= 840 * (50X 80, 80) L= 840 |
TOP --AS* 29.84 .00 29.94| 29.95 .00 29.92* 29.92 .00 30.04|
BOT.--AS* 12.23 13.21 12.23| 12.23 13.21 12.23* 12.23 13.21 12.23|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10* 4-#10 3-#10 4-#10|
TOP 2 * * * * * * * * *
TOP 3 * * * * * * * * *
WEB * * * * * * * * *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 * 4-#8 4-#8 4-#8 |
Vu-STRESS* 11.24 8.52 11.25| 11.25 8.51 11.24* 11.24 8.53 11.26|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 80* 80 80 80, 80 80 80|

B19 -B19

3- 3 B15 3- 3 B16 3- 3 B17
F-D L 3* (50X 80, 80) L= 960 | (50X 80, 80) L=1090 | (50X 80, 80) L= 840 |
TOP --AS* 43.41 10.85 43.27| 47.70 11.92 47.69| 40.78 10.19 40.20|
BOT.--AS* 21.70 17.13 21.63| 23.85 17.67 23.84| 20.39 13.40 20.10|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * 2-#10 2-#10 2-#10 | 2-#10 2-#10 2-#8 |
TOP 3 * * * * * * * * *
WEB * * * * * * * * *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 3-#10 3-#10 3-#10| 3-#10 4-#10 3-#10| 3-#10 3-#10 3-#10|
Vu-STRESS* 20.00 15.48 20.11| 21.92 17.55 21.93| 18.56 14.83 18.48|
STIRRUPS*1-#4@12 1-#4@20 1-#4@12|1-#4@15 1-#4@15 2-#4@15|1-#4@12 1-#4@20 1-#4@12|
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80 80 80| 80 80 80, 80 80 80 80|

2- 2 B21 2- 2 B21a 2- 2 B21b
F-D L 2* (50X 80, 80) L= 840 | (50X 80, 80) L= 840 | (80X 80, 80) L= 840 *
TOP --AS* 29.92 .00 30.04| 29.92 .00 30.04| 30.68 .00 29.50*
BOT.--AS* 12.23 13.21 12.23| 12.23 13.21 12.23| 12.23 13.51 12.23*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 5-#10 3-#10 5-#10*
TOP 2 * * * * * * * * *
TOP 3 * * * * * * * * *
WEB * * * * * * * * *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 | 5-#8 4-#8 5-#8 *
Vu-STRESS* 11.24 8.53 11.26| 11.24 8.53 11.26| 11.53 8.80 11.20*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 80 80 80| 80 80 80, 80 80 80 0*

3- 3 B18 3- 3 B19 3- 3 B20
F-D L 3* (50X 80, 80) L= 840 | (50X 80, 80) L= 840 * (50X 80, 80) L= 840 |
TOP --AS* 40.10 10.04 40.17| 40.07 10.05 40.20* 40.07 10.02 40.06|
BOT.--AS* 20.05 13.40 20.09| 20.03 13.41 20.10* 20.04 13.44 20.03|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * 2-#8 2-#8 | 2-#8 2-#8 * 2-#8 |
TOP 3 * * * * * * * * *
WEB * * * * * * * * *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10* 3-#10 3-#10 3-#10|
Vu-STRESS* 18.46 14.83 18.48| 18.45 14.83 18.48* 18.47 14.83 18.48|
STIRRUPS*1-#4@12 1-#4@20 1-#4@12|1-#4@12 1-#4@20 1-#4@12*1-#4@12 1-#4@20 1-#4@12|
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 80 80 80| 80 80 80, 80 80 80 80|

B19 -B19

3- 3 B21
F-D L 3* (50X 80, 80) L= 840 *
TOP --AS* 40.46 10.39 41.55*
BOT.--AS* 20.23 13.41 20.78*
TOP 1 * 4-#10 3-#10 4-#10*
TOP 2 * 2-#8 2-#8 *
TOP 3 * * *
WEB * * *
BOT. 3 * * *
BOT. 2 * * *
BOT. 1 * 3-#10 3-#10 3-#10*
Vu-STRESS* 19.39 15.79 19.43*
STIRRUPS*1-#4@12 1-#4@20 1-#4@12*
BCC,CCB * 80 80 80, 80 80 0*

1- 1 B17 (F) 1- 1 B18 (F) 1- 1 B19 (F)
F-D L 1* (60X250,250) L= 840 | (60X250,250) L= 840 | (60X250,250) L= 840 *
TOP --AS* 16.21 32.45 16.21| 16.21 32.45 16.21| 16.21 32.45 16.21*
BOT.--AS* 48.68 32.45 32.45| 32.45 .00 33.41| 33.35 .00 32.97*
TOP 1 * 3-#10 4-#10 3-#10| 3-#10 4-#10 3-#10| 3-#10 4-#10 3-#10*
TOP 2 * * * * * * * * *
TOP 3 * * * * * * * * *
WEB * (7-# 5E.F.) | (7-# 5E.F.) | (7-# 5E.F.) *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 6-#10 4-#10 4-#10| 4-#10 3-#10 5-#10| 5-#10 3-#10 5-#10*
Vu-STRESS* 12.04 8.41 10.38| 10.52 7.54 11.18| 10.88 7.51 11.14*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 250|250 80 0, 80 0 250*
B19

2- 2 B15 (F) 2- 2 B16 (F) 2- 2 B17
F-D L 2* (60X250,250) L= 960 | (60X250,250) L=1090 | (50X 80, 80) L= 840 |
TOP --AS* 32.45 48.68 16.21| 16.21 48.68 16.21| 31.14 .00 29.58|
BOT.--AS* 32.45 .00 48.68| 48.68 .00 48.68| 12.23 12.97 12.23|
TOP 1 * 4-#10 6-#10 3-#10| 3-#10 6-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * * * * * * * * *
TOP 3 * * * * * * * * *
WEB * (7-# 5E.F.) | (7-# 5E.F.) | *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 4-#10 4-#10 6-#10| 6-#10 3-#10 6-#10| 4-#8 4-#8 4-#8 |
Vu-STRESS* 10.10 12.38 17.17| 16.54 12.38 14.93| 11.41 8.68 11.13|
STIRRUPS*1-#4@15 1-#4@25 1-#4@12|1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 80|250 80 80, 80 80 80|

1- 1 B21a (F) 1- 1 B21b (F)
F-D L 1* (60X250,250) L= 840 | (60X250,250) L= 840 *
TOP --AS* 16.21 32.45 16.21| 16.21 40.04 32.45*
BOT.--AS* 32.45 .00 40.64| 40.43 .00 32.45*
TOP 1 * 3-#10 4-#10 3-#10| 3-#10 5-#10 4-#10*
TOP 2 * * * * * * * * *
TOP 3 * * * * * * * * *
WEB * (7-# 5E.F.) | (7-# 5E.F.) | *
BOT. 3 * * * * * * * * *
BOT. 2 * * * * * * * * *
BOT. 1 * 5-#10 3-#10 5-#10| 5-#10 4-#10 4-#10*
Vu-STRESS* 10.26 7.90 11.54| 13.81 10.18 8.57*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 80 0, 80 0 250|250 80 0, 80 0 0*

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*   FRAME   7--BEAM DESIGN
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	5- 5 G1 (R)				5- 5 G2 (R)				5- 5 G3 (R)			
F-3 L 5*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	19.78	12.23	18.99	26.83	.00	27.77	22.49	.00	22.43*			
BOT. --AS*	16.92	12.23	15.57	12.23	13.30	12.23	12.23	12.23	12.23*			
TOP 1 *	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8 *			
TOP 2 *		2-#7	2-#7		2-#7	2-#7		2-#7	2-#7 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *									*			
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8 *			
Vu-STRESS*	8.70	8.06	8.82	11.08	8.21	11.23	8.11	6.34	8.10*			
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@20	1-#4@15	1-#4@15*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G2

	4- 4 G1				4- 4 G2				4- 4 G3			
F-3 L 4*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	36.65	12.23	33.68	34.65	8.79	35.18	30.43	7.61	30.34*			
BOT. --AS*	32.92	12.23	32.71	17.32	12.23	17.59	17.00	12.23	17.04*			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*			
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *	2-#8								*			
BOT. 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	3-#10	3-#10	3-#10	3-#10*			
Vu-STRESS*	21.25	19.35	20.28	17.81	14.23	17.86	13.44	11.28	13.42*			
STIRRUPS*1-#4@10	1-#4@12	1-#4@12	1-#4@12	1-#4@15	1-#4@20	1-#4@15	1-#4@20	1-#4@15	1-#4@15*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G2

	3- 3 G1				3- 3 G2				3- 3 G3			
F-3 L 3*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	47.95	12.23	45.33	39.88	10.21	40.84	36.10	9.03	36.04*			
BOT. --AS*	45.01	12.23	43.84	20.26	12.23	20.75	22.46	12.23	22.49*			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*			
TOP 2 *	2-#10		2-#10	2-#10		2-#8	2-#8		2-#8 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *	2-#10		2-#10	2-#10					*			
BOT. 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	3-#10	3-#10	3-#10	3-#10*			
Vu-STRESS*	24.39	22.93	23.86	17.81	14.23	17.90	14.40	12.25	14.39*			
STIRRUPS*2-#4@15	2-#4@20	2-#4@15	2-#4@15	2-#4@15	1-#4@20	1-#4@15	1-#4@20	1-#4@15	1-#4@15*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G2

	2- 2 G1 (F)				2- 2 G2 (F)				2- 2 G3 (F)			
F-3 L 1*	(60X250,250)	L= 500		(60X250,250)	L= 840		(60X250,250)	L= 840	*			
TOP --AS*	32.45	.00	.00	16.21	32.45	16.21	16.21	32.45	16.21*			
BOT. --AS*	32.45	32.45	32.45	32.45	.00	32.45	32.45	32.45	32.45*			
TOP 1 *	4-#10	3-#10	3-#10	3-#10	4-#10	3-#10	3-#10	4-#10	3-#10*			
TOP 2 *									*			
TOP 3 *									*			
WEB *	(7-# 5E.F.)			(7-# 5E.F.)		(7-# 5E.F.)			*			
BOT. 3 *									*			
BOT. 2 *									*			
BOT. 1 *	4-#10	4-#10	4-#10	4-#10	3-#10	4-#10	4-#10	4-#10	4-#10*			
Vu-STRESS*	3.63	5.29	5.61	10.56	7.02	10.45	5.30	3.86	5.30*			
STIRRUPS*1-#4@15	1-#4@25	1-#4@15	1-#4@15	1-#4@15	1-#4@25	1-#4@15	1-#4@25	1-#4@15	1-#4@15*			
BCC,CCB *	0 80	0, 80	0 250	1250 80	0, 80	0 250	1250 80	0, 80	0 250*			

-G2

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*   FRAME   8--BEAM DESIGN
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	5- 5 G4 (R)				5- 5 G5 (R)				5- 5 G6 (R)			
F-4 L 5*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	20.07	12.23	19.51	29.09	.00	30.19	29.96	.00	29.91*			
BOT. --AS*	15.65	12.23	14.25	12.23	17.74	12.23	12.23	17.48	12.23*			
TOP 1 *	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8	4-#8	3-#8	4-#8 *			
TOP 2 *		2-#8	2-#8		2-#8	2-#8		2-#8	2-#8 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *									*			
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8 *			
Vu-STRESS*	9.60	8.53	9.79	12.69	9.33	12.89	12.71	9.11	12.70*			
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G5

	4- 4 G4				4- 4 G5				4- 4 G6			
F-4 L 4*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	36.18	12.23	32.93	36.44	9.24	36.98	36.84	9.21	36.79*			
BOT. --AS*	30.75	12.23	30.71	18.22	15.39	18.49	18.42	15.37	18.39*			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*			
TOP 2 *	2-#8		2-#8	2-#8		2-#8	2-#8		2-#8 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *									*			
BOT. 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	3-#10	3-#10	3-#10	3-#10*			
Vu-STRESS*	20.97	18.43	19.93	19.28	15.64	19.33	19.30	15.64	19.28*			
STIRRUPS*1-#4@10	1-#4@12	1-#4@12	1-#4@12	1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@20	1-#4@12*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G5

	3- 3 G4				3- 3 G5				3- 3 G6			
F-4 L 3*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*			
TOP --AS*	46.54	12.23	43.75	41.26	10.57	42.29	42.34	10.58	42.29*			
BOT. --AS*	41.86	12.23	40.81	20.63	15.32	21.15	21.17	15.33	21.15*			
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*			
TOP 2 *	2-#10		2-#10	2-#10		2-#8	2-#8		2-#8 *			
TOP 3 *									*			
WEB *									*			
BOT. 3 *									*			
BOT. 2 *	2-#8		2-#8	2-#8					*			
BOT. 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	3-#10	3-#10	3-#10	3-#10*			
Vu-STRESS*	25.82	23.77	25.28	20.24	16.59	20.34	20.25	16.59	20.24*			
STIRRUPS*2-#4@15	2-#4@15	2-#4@15	2-#4@15	2-#4@12	1-#4@15	1-#4@12	1-#4@12	1-#4@15	1-#4@12*			
BCC,CCB *	0 80	80, 80	80 80	80 80	80, 80	80 80	80 80	80, 80	80 80*			

-G5

	1- 1 G4 (F)				1- 1 G5 (F)				1- 1 G6 (F)			
F-4 L 1*	(60X250,250)	L= 500		(60X250,250)	L= 840		(60X250,250)	L= 840	*			
TOP --AS*	32.45	32.45	16.21	16.21	16.21	16.21	16.21	32.45	16.21*			
BOT. --AS*	32.45	32.45	32.45	32.45	.00	38.67	38.72	.00	38.76*			
TOP 1 *	4-#10	4-#10	3-#10	3-#10	5-#10	3-#10	3-#10	4-#10	3-#10*			
TOP 2 *									*			
TOP 3 *									*			
WEB *	(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5							

```

*****
*
*   FRAME  9--BEAM DESIGN  *
*
*****

```

```

          5- 5 G7 (R)          5- 5 G8 (R)          5- 5 G9 (R)
F-5 L 5* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 19.02 12.23 18.45| 27.36 .00 28.85| 28.18 .00 28.15*
BOT. --AS* 14.80 12.23 13.50| 12.23 16.33 12.23| 12.23 16.08 12.23*
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#80*
TOP 2 *          2-#8 | 2-#8          2-#8 | 2-#8          2-#8 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 *          |          |          |          *
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 9.16 8.07 9.32| 12.12 8.74 12.30| 12.13 8.54 12.12*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@20 1-#4@15*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G8

```

          4- 4 G7          4- 4 G8          4- 4 G9
F-5 L 4* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 34.07 12.23 31.00| 34.21 8.68 34.41| 34.29 8.65 34.28*
BOT. --AS* 28.93 12.23 28.92| 17.11 14.18 17.36| 17.29 14.16 17.29*
TOP 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
TOP 2 * 2-#8          2-#8 | 2-#8          2-#8 | 2-#8          2-#8 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 *          |          |          |          *
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 19.00 18.30 18.03| 18.78 15.13 18.81| 18.78 15.13 18.78*
STIRRUPS*1-#4@12 1-#4@15 1-#4@15|1-#4@12 1-#4@20 1-#4@12|1-#4@20 1-#4@12*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G8

```

          3- 3 G7          3- 3 G8          3- 3 G9
F-5 L 3* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 43.38 12.23 40.76| 38.52 9.87 39.48| 39.54 9.88 39.51*
BOT. --AS* 38.96 12.23 38.00| 19.26 14.12 19.74| 19.77 14.12 19.75*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10*
TOP 2 * 2-#10          2-#8 | 2-#8          2-#8 | 2-#8          2-#8 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 * 2-#8          2-#8 | 2-#8          |          *
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 22.12 21.87 21.60| 18.78 15.13 18.87| 18.78 15.13 18.78*
STIRRUPS*2-#4@15 2-#4@15 2-#4@15|1-#4@12 1-#4@20 1-#4@12|1-#4@20 1-#4@12*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G8

```

          2- 2 G7          2- 2 G8          2- 2 G9
F-5 L 2* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 31.86 12.23 32.51| 31.39 .00 32.04| 32.00 .00 32.19*
BOT. --AS* 29.20 12.23 27.45| 12.23 14.08 12.23| 12.23 13.85 12.23*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10*
TOP 2 *          |          |          |          *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 * 2-#8          2-#7 | 2-#7          |          *
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 13.79 13.27 14.39| 11.76 9.26 11.99| 11.96 9.22 11.96*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@20 1-#4@15*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G8

```

          1- 1 G7 (F)          1- 1 G8 (F)          1- 1 G9 (F)
F-5 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 | ( 60X250,250) L= 840 *
TOP --AS* 32.45 32.45 16.21| 16.21 32.84 16.21| 16.21 32.45 16.21*
BOT. --AS* 32.45 32.45 32.45| 32.45 .00 36.11| 32.45 .00 36.19*
TOP 1 * 4-#10 4-#10 3-#10| 3-#10 5-#10 3-#10| 3-#10 3-#10 5-#10 *
TOP 2 *          |          |          |          *
TOP 3 *          |          |          |          *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 *          |          |          |          *
BOT. 2 *          |          |          |          *
BOT. 1 * 4-#10 4-#10 4-#10| 4-#10 4-#10 5-#10| 5-#10 3-#10 5-#10*
Vu-STRESS* 1.94 5.63 6.56| 11.00 8.53 12.17| 11.21 7.57 11.21*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|1-#4@25 1-#4@15*
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 250|250 80 0, 80 0 250*

```

-G8

```

          1- 1 CG7 (F)
F-5 L 1* ( 60X250,250) L= 300 *
TOP --AS* 32.45 32.45 32.45*
BOT. --AS* 32.45 32.45 32.45*
TOP 1 * 4-#10 4-#10 4-#10*
TOP 2 *          *
TOP 3 *          *
WEB * ( 7-# 5E.F. ) *
BOT. 3 *          *
BOT. 2 *          *
BOT. 1 * 4-#10 4-#10 4-#10*
Vu-STRESS* 1.94 5.63 6.56*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15*
BCC,CCB *250 80 0, 80 0 0*

```

G7

```

*****
*
*   FRAME 10--BEAM DESIGN  *
*
*****

```

```

          5- 5 G10 (R)          5- 5 G11 (R)          5- 5 G12 (R)
F-6 L 5* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 19.03 12.23 17.80| 27.04 7.00 27.99| 27.37 6.86 27.43*
BOT. --AS* 14.83 12.23 14.31| 13.52 15.28 13.99| 13.68 15.07 13.72*
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 *
TOP 2 *          2-#7 | 2-#7          2-#7 | 2-#7          2-#7 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 *          |          |          |          *
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 8.84 7.74 8.98| 11.77 8.37 11.95| 11.78 8.17 11.79*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@20 1-#4@15*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G11

```

          4- 4 G10          4- 4 G11          4- 4 G12
F-6 L 4* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 33.37 12.23 30.54| 33.33 8.44 33.78| 33.56 8.42 33.67*
BOT. --AS* 28.81 12.23 28.88| 16.66 13.47 16.89| 16.78 13.45 16.84*
TOP 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
TOP 2 * 2-#8          2-#8 | 2-#8          2-#8 | 2-#8          2-#8 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 *          |          |          |          *
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 18.81 18.23 17.95| 18.48 14.83 18.48| 18.45 14.83 18.48*
STIRRUPS*1-#4@12 1-#4@15 1-#4@15|1-#4@12 1-#4@20 1-#4@12|1-#4@20 1-#4@12*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G11

```

          3- 3 G10          3- 3 G11          3- 3 G12
F-6 L 3* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 41.47 12.23 38.99| 36.88 9.45 37.80| 37.87 9.47 37.88*
BOT. --AS* 37.63 12.23 36.68| 18.44 13.43 18.90| 18.94 13.42 18.94*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10 *
TOP 2 * 2-#8          2-#8 | 2-#8          2-#8 | 2-#8          2-#8 *
TOP 3 *          |          |          |          *
WEB *          |          |          |          *
BOT. 3 *          |          |          |          *
BOT. 2 * 2-#8          2-#8 | 2-#8          |          *
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 22.02 21.80 21.52| 18.48 14.83 18.57| 18.48 14.83 18.48*
STIRRUPS*2-#4@15 2-#4@15 2-#4@15|1-#4@12 1-#4@20 1-#4@12|1-#4@20 1-#4@12*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*

```

-G11

```

*****
*
*   FRAME 14--BEAM DESIGN   *
*
*****

```

```

          2- 2 G10          2- 2 G11          2- 2 G12
F-6 L 2* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 28.84 12.23 29.51| 29.19 .00 30.72| 30.65 .00 30.65*
BOT. --AS* 26.24 12.23 24.65| 12.23 13.37 12.23| 12.23 13.15 12.23*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10*
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * 2-#7 2-#7 | 2-#7 |
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 12.68 12.15 13.26| 11.20 8.69 11.42| 11.38 8.65 11.38*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15| 1-#4@15 1-#4@20 1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80| 80 80 80, 80 80 80*
-G11

```

```

          1- 1 G10 (F)          1- 1 G11 (F)          1- 1 G12 (F)
F-6 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 | ( 60X250,250) L= 840 *
TOP --AS* 32.45 32.45 16.21| 16.21 32.45 16.21| 16.21 32.45 16.21*
BOT. --AS* 32.45 32.45 32.45| 32.45 .00 34.61| 34.69 .00 34.68*
TOP 1 * 4-#10 4-#10 3-#10| 3-#10 4-#10 3-#10| 3-#10 4-#10 3-#10*
TOP 2 * | |
TOP 3 * | |
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 4-#10 4-#10 4-#10| 4-#10 3-#10 5-#10| 5-#10 3-#10 5-#10*
Vu-STRESS* 1.70 5.21 6.14| 10.62 8.10 11.74| 10.82 7.18 10.82*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15| 1-#4@15 1-#4@25 1-#4@15 1-#4@25 1-#4@15*
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 250|250 80 0, 80 0 250*
-G11

```

```

          1- 1 CG10 (F)
F-5 L 1* ( 60X250,250) L= 300 *
TOP --AS* 32.45 32.45 32.45*
BOT. --AS* 32.45 32.45 32.45*
TOP 1 * 4-#10 4-#10 4-#10*
TOP 2 * *
TOP 3 * *
WEB * ( 7-# 5E.F. ) *
BOT. 3 * *
BOT. 2 * *
BOT. 1 * 4-#10 4-#10 4-#10*
Vu-STRESS* 1.94 5.63 6.56*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15*
BCC,CCB *250 80 0, 80 0 0*
G10

```

```

          1- 1 G10a (F)          1- 1 G11a (F)          1- 1 G12a (F)
F-9 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 | ( 60X250,250) L= 840 *
TOP --AS* 32.45 32.45 16.21| 16.21 32.45 16.21| 16.21 32.45 16.21*
BOT. --AS* 32.45 32.45 32.45| 32.45 .00 34.61| 34.69 .00 34.68*
TOP 1 * 4-#10 4-#10 3-#10| 3-#10 4-#10 3-#10| 3-#10 4-#10 3-#10*
TOP 2 * | |
TOP 3 * | |
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 4-#10 4-#10 4-#10| 4-#10 3-#10 5-#10| 5-#10 3-#10 5-#10*
Vu-STRESS* 1.70 5.21 6.14| 10.62 8.10 11.74| 10.82 7.18 10.82*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15| 1-#4@15 1-#4@25 1-#4@15 1-#4@25 1-#4@15*
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 250|250 80 0, 80 0 250*
-G11a

```

```

          5- 5 G13 (R)          5- 5 G14 (R)
F-10 L 5* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 20.26 12.23 19.67| 27.62 .00 29.15|
BOT. --AS* 16.22 12.23 14.83| 12.23 15.50 12.23|
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 |
TOP 2 * 2-#7 | 2-#7 2-#8 |
TOP 3 * |
WEB * |
BOT. 3 * |
BOT. 2 * |
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 |
Vu-STRESS* 9.59 8.53 9.78| 11.77 8.67 11.96|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15| 1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80|

```

```

          5- 5 G15 (R)          5- 5 G16 (R)
F-10 L 5* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 28.44 .00 28.52| 28.84 .00 28.05*
BOT. --AS* 12.23 15.26 12.23| 12.23 15.66 12.23*
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 *
TOP 2 * 2-#8 2-#8 | 2-#8 2-#7 *
TOP 3 * |
WEB * |
BOT. 3 * |
BOT. 2 * |
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 11.78 8.48 11.80| 11.98 8.73 11.73*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15| 1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 0*

```

```

          4- 4 G13          4- 4 G14
F-10 L 4* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 36.12 12.23 33.26| 34.92 8.90 35.61|
BOT. --AS* 31.33 12.23 31.09| 17.46 13.47 17.81|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * 2-#8 2-#8 | 2-#8 2-#8 |
TOP 3 * |
WEB * |
BOT. 3 * |
BOT. 2 * |
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10|
Vu-STRESS* 20.56 18.24 19.72| 18.42 14.83 18.48|
STIRRUPS*1-#4@12 1-#4@15 1-#4@12| 1-#4@12 1-#4@20 1-#4@12|
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80|

```

```

          4- 4 G15          4- 4 G16
F-10 L 4* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 35.33 8.88 35.50| 35.24 9.07 36.27*
BOT. --AS* 17.66 13.45 17.75| 17.62 13.51 18.13*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10*
TOP 2 * 2-#8 2-#8 | 2-#8 2-#8 *
TOP 3 * |
WEB * |
BOT. 3 * |
BOT. 2 * |
BOT. 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10|
Vu-STRESS* 18.44 14.83 18.48| 18.39 14.83 18.48*
STIRRUPS*1-#4@12 1-#4@20 1-#4@12| 1-#4@12 1-#4@20 1-#4@12|
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 0*

```

```

          3- 3 G13          3- 3 G14
F-10 L 3* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 45.00 12.23 42.38| 38.86 9.98 39.94|
BOT. --AS* 40.77 12.23 39.63| 19.43 13.43 19.97|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * 2-#10 2-#10 | 2-#10 2-#8 |
TOP 3 * |
WEB * |
BOT. 3 * |
BOT. 2 * 2-#8 2-#8 | 2-#8 2-#8 |
BOT. 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 3-#10|
Vu-STRESS* 23.74 21.81 23.29| 18.37 14.83 18.48|
STIRRUPS*2-#4@12 2-#4@15 2-#4@12| 1-#4@12 1-#4@20 1-#4@12|
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80|

```

 *
 * FRAME 16--BEAM DESIGN *
 *

	3- 3 G15				3- 3 G16			
F-10 L 3*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*		
TOP --AS*	39.98	9.99	39.92	40.38	10.35	41.38*		
BOT. --AS*	19.99	13.43	19.96	20.19	13.41	20.69*		
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*		
TOP 2 *	2-#8		2-#8	2-#8	2-#8	*		
TOP 3 *						*		
WEB *						*		
BOT. 3 *						*		
BOT. 2 *						*		
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*		
Vu-STRESS*	18.49	14.83	18.48	19.42	15.79	19.43*		
STIRRUPS*1-#4@12	1-#4@20	1-#4@12	1-#4@12	1-#4@20	1-#4@12	1-#4@12*		
BCC,CCB *	80	80, 80	80 80	80 80	80, 80	80 0*		

	5- 5 G17 (R)				5- 5 G18 (R)			
F-12 L 5*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840			
TOP --AS*	17.46	.00	17.81	21.03	.00	21.84		
BOT. --AS*	15.56	12.23	14.92	12.23	12.23	12.23		
TOP 1 *	4-#8	3-#8	5-#8	5-#8	3-#8	5-#8		
TOP 2 *								
TOP 3 *								
WEB *								
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8		
Vu-STRESS*	8.05	7.53	8.28	7.72	6.08	7.86		
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15		
BCC,CCB *	0	80, 80	80 80	80 80	80, 80	80 80		

	2- 2 G13				2- 2 G14			
F-10 L 2*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840			
TOP --AS*	27.42	.00	28.01	28.59	.00	30.00		
BOT. --AS*	24.78	12.23	23.33	12.23	13.39	12.23		
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10		
TOP 2 *								
TOP 3 *								
WEB *								
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	5-#8	4-#8	5-#8	5-#8	4-#8	4-#8		
Vu-STRESS*	12.19	11.60	12.72	11.07	8.55	11.28		
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15		
BCC,CCB *	0	80	80, 80	80 80	80, 80	80 80		

	5- 5 G19 (R)				5- 5 G20 (R)			
F-12 L 5*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*		
TOP --AS*	21.23	.00	21.32	21.51	.00	21.55*		
BOT. --AS*	12.23	12.23	12.23	12.23	12.23	12.23		
TOP 1 *	5-#8	3-#8	5-#8	5-#8	3-#8	5-#8		
TOP 2 *						*		
TOP 3 *						*		
WEB *						*		
BOT. 3 *						*		
BOT. 2 *						*		
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8		
Vu-STRESS*	7.70	5.94	7.72	7.89	6.11	7.76*		
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15		
BCC,CCB *	80	80	80, 80	80 80	80, 80	80 0*		

	2- 2 G15				2- 2 G16			
F-10 L 2*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*		
TOP --AS*	29.82	.00	29.92	30.52	.00	29.40*		
BOT. --AS*	12.23	13.20	12.23	12.23	13.52	12.23*		
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*		
TOP 2 *						*		
TOP 3 *						*		
WEB *						*		
BOT. 3 *						*		
BOT. 2 *						*		
BOT. 1 *	4-#8	4-#8	4-#8	4-#8	4-#8	4-#8		
Vu-STRESS*	11.21	8.50	11.24	11.50	8.77	11.18*		
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15*		
BCC,CCB *	80	80	80, 80	80 80	80, 80	80 0*		

	4- 4 G17				4- 4 G18			
F-12 L 4*	(50X 80, 80)	L= 500		(50X 80, 80)	L= 840			
TOP --AS*	32.96	8.24	32.42	28.89	7.38	29.51		
BOT. --AS*	30.74	12.23	30.95	17.38	12.23	17.64		
TOP 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	4-#10		
TOP 2 *	2-#8		2-#8	2-#8				
TOP 3 *								
WEB *								
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	3-#10		
Vu-STRESS*	16.83	17.45	16.60	12.85	10.77	12.91		
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@20	1-#4@15		
BCC,CCB *	0	80	80, 80	80 80	80, 80	80 80		

	1- 1 G13 (F)				1- 1 G14 (F)			
F-6 L 1*	(60X250,250)	L= 500		(60X250,250)	L= 840			
TOP --AS*	32.45	32.45	16.21	16.21	32.45	16.21		
BOT. --AS*	32.45	32.45	32.45	32.45	.00	33.32		
TOP 1 *	4-#10	4-#10	3-#10	3-#10	4-#10	3-#10		
TOP 2 *								
TOP 3 *								
WEB *	(7-# 5E.F.)			(7-# 5E.F.)				
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	4-#10	4-#10	4-#10	4-#10	3-#10	5-#10		
Vu-STRESS*	1.70	5.21	6.14	10.62	8.10	11.74		
STIRRUPS*1-#4@15	1-#4@25	1-#4@15	1-#4@15	1-#4@25	1-#4@15	1-#4@15		
BCC,CCB *	0	80	0, 80	0 250	250 80	0, 80		

	4- 4 G19				4- 4 G20			
F-12 L 4*	(50X 80, 80)	L= 840		(50X 80, 80)	L= 840	*		
TOP --AS*	29.16	7.34	29.37	29.21	7.54	30.16*		
BOT. --AS*	17.45	12.23	17.36	17.80	12.23	18.25*		
TOP 1 *	4-#10	3-#10	4-#10	4-#10	3-#10	4-#10*		
TOP 2 *						*		
TOP 3 *						*		
WEB *						*		
BOT. 3 *						*		
BOT. 2 *						*		
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*		
Vu-STRESS*	12.85	10.77	12.91	12.83	10.77	12.91*		
STIRRUPS*1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@20	1-#4@15	1-#4@15		
BCC,CCB *	80	80	80, 80	80 80	80, 80	80 0*		

	1- 1 G15 (F)				1- 1 G16 (F)			
F-6 L 1*	(60X250,250)	L= 840		(60X250,250)	L= 840	*		
TOP --AS*	16.21	32.45	16.21	16.21	40.16	32.45*		
BOT. --AS*	33.55	.00	39.98	39.95	.00	32.45*		
TOP 1 *	3-#10	4-#10	3-#10	3-#10	5-#10	4-#10*		
TOP 2 *						*		
TOP 3 *						*		
WEB *	(7-# 5E.F.)			(7-# 5E.F.)		*		
BOT. 3 *						*		
BOT. 2 *						*		
BOT. 1 *	5-#10	3-#10	5-#10	5-#10	4-#10	4-#10*		
Vu-STRESS*	10.62	8.10	11.74	10.82	7.18	10.82*		
STIRRUPS*1-#4@15	1-#4@25	1-#4@15	1-#4@15	1-#4@25	1-#4@15	1-#4@15*		
BCC,CCB *	250	80	0, 80	0 250	250 80	0, 80		

	3- 3 G17				3- 3 G18			
F-12 L 3*	(80X 80, 80)	L= 500		(50X 80, 80)	L= 840			
TOP --AS*	41.70	10.43	41.30	33.10	8.43	33.72		
BOT. --AS*	39.53	12.23	39.91	21.19	12.23	21.71		
TOP 1 *	6-#10	6-#10	6-#10	4-#10	3-#10	4-#10		
TOP 2 *			2-#8	2-#8		2-#8		
TOP 3 *								
WEB *								
BOT. 3 *								
BOT. 2 *								
BOT. 1 *	6-#10	6-#10	6-#10	4-#10	3-#10	3-#10		
Vu-STRESS*	22.28	21.02	21.94	13.87	11.74	13.88		
STIRRUPS*2-#4@15	2-#4@15	2-#4@15	2-#4@15	1-#4@20	1-#4@15	1-#4@15		
BCC,CCB *	0	80	80, 80	80 80	80, 80	80 80		

```

*****
*
*   FRAME 17--BEAM DESIGN   *
*
*****

```

```

          3- 3 G19          3- 3 G20
F-12 L 3* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 33.79   8.45   33.74| 34.12   8.91   35.64*
BOT.--AS* 21.77   12.23   21.74| 22.45   12.23   23.10*
TOP  1 *  4-#10   3-#10   4-#10| 4-#10   3-#10   4-#10*
TOP  2 *  2-#8     2-#8 | 2-#8     2-#8 *
TOP  3 *                                     *
WEB   *                                     *
BOT.  3 *                                     *
BOT.  2 *                                     *
BOT.  1 *  3-#10   3-#10   3-#10| 3-#10   3-#10   3-#10*
Vu-STRESS* 13.89   11.74   13.88| 13.73   11.74   13.88*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 80   80   80   80   80| 80   80   80   80   0*

```

```

          2- 2 G21          2- 2 G22
F-12 L 2* ( 80X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 26.56   .00   28.76| 28.93   .00   30.63|
BOT.--AS* 24.55   12.23   23.39| 12.23   13.35   12.23|
TOP  1 *  5-#10   3-#10   5-#10| 4-#10   3-#10   4-#10|
TOP  2 *                                     |
TOP  3 *                                     |
WEB   *                                     |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  5-#8    4-#8    5-#8 | 5-#8    4-#8    4-#8 |
Vu-STRESS* 11.99   11.75   12.86| 11.14   8.67   11.41|
STIRRUPS*1-#4@15 1-#4@15 1-#4@15|1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 0   80   80   80   80| 80   80   80   80   80|

```

```

          2- 2 G17          2- 2 G18
F-12 L 2* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 26.56   .00   28.76| 28.93   .00   30.63|
BOT.--AS* 24.55   12.23   23.39| 12.23   13.35   12.23|
TOP  1 *  4-#10   3-#10   4-#10| 4-#10   3-#10   4-#10|
TOP  2 *                                     |
TOP  3 *                                     |
WEB   *                                     |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  5-#8    4-#8    5-#8 | 5-#8    4-#8    4-#8 |
Vu-STRESS* 11.99   11.75   12.86| 11.14   8.67   11.41|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 0   80   80   80   80| 80   80   80   80   80|

```

```

          2- 2 G23          2- 2 G24
F-12 L 2* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 662 *
TOP --AS* 30.35   .00   30.46| 31.24   .00   29.67*
BOT.--AS* 12.23   13.11   12.23| 12.23   13.49   12.23*
TOP  1 *  4-#10   3-#10   4-#10| 4-#10   3-#10   4-#10*
TOP  2 *                                     |
TOP  3 *                                     |
WEB   *                                     |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  4-#8    4-#8    4-#8 | 4-#8    4-#8    4-#8 |
Vu-STRESS* 11.32   8.61   11.34| 11.65   8.92   11.24*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 80   80   80   80   80| 80   80   80   80   0*

```

```

          2- 2 G19          2- 2 G20
F-12 L 2* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 840 *
TOP --AS* 30.35   .00   30.46| 31.24   .00   29.67*
BOT.--AS* 12.23   13.11   12.23| 12.23   13.49   12.23*
TOP  1 *  4-#10   3-#10   4-#10| 4-#10   3-#10   4-#10*
TOP  2 *                                     |
TOP  3 *                                     |
WEB   *                                     |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  4-#8    4-#8    4-#8 | 4-#8    4-#8    4-#8 *
Vu-STRESS* 11.32   8.61   11.34| 11.65   8.92   11.24*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 80   80   80   80   80| 80   80   80   80   0*

```

```

          1- 1 G21 (F)          1- 1 G22 (F)
F-12 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 |
TOP --AS* 32.45   32.45   16.21| 16.21   32.45   16.21|
BOT.--AS* 32.45   32.45   32.45| 32.45   .00   33.28|
TOP  1 *  4-#10   4-#10   3-#10| 3-#10   4-#10   3-#10|
TOP  2 *                                     |
TOP  3 *                                     |
WEB   * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  4-#10   4-#10   4-#10| 4-#10   3-#10   5-#10|
Vu-STRESS* 1.56   5.05   6.10| 10.75   7.98   11.61|
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0   80   0, 80   0 250|250 80   0, 80   0 250|

```

```

          1- 1 G17 (F)          1- 1 G18 (F)
F-12 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 |
TOP --AS* 32.45   32.45   16.21| 16.21   32.45   16.21|
BOT.--AS* 32.45   32.45   32.45| 32.45   .00   33.28|
TOP  1 *  4-#10   4-#10   3-#10| 3-#10   4-#10   3-#10|
TOP  2 *                                     |
TOP  3 *                                     |
WEB   * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  4-#10   4-#10   4-#10| 4-#10   3-#10   5-#10|
Vu-STRESS* 1.56   5.05   6.10| 10.75   7.98   11.61|
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0   80   0, 80   0 250|250 80   0, 80   0 250|

```

```

          1- 1 G23 (F)          1- 1 G24 (F)
F-12 L 1* ( 60X250,250) L= 840 | ( 60X250,250) L= 662 *
TOP --AS* 16.21   32.45   16.21| 16.21   40.32   32.45*
BOT.--AS* 33.57   .00   40.01| 39.99   .00   32.45*
TOP  1 *  3-#10   4-#10   3-#10| 3-#10   5-#10   4-#10*
TOP  2 *                                     |
TOP  3 *                                     |
WEB   * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  5-#10   3-#10   5-#10| 5-#10   4-#10   4-#10*
Vu-STRESS* 10.56   7.67   11.30| 13.80   10.16   8.55*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 80   0, 80   0 250|250 80   0, 80   0 0*

```

```

          1- 1 G19 (F)          1- 1 G20 (F)
F-12 L 1* ( 60X250,250) L= 840 | ( 60X250,250) L= 840 *
TOP --AS* 16.21   32.45   16.21| 16.21   40.32   32.45*
BOT.--AS* 33.57   .00   40.01| 39.99   .00   32.45*
TOP  1 *  3-#10   4-#10   3-#10| 3-#10   5-#10   4-#10*
TOP  2 *                                     |
TOP  3 *                                     |
WEB   * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) |
BOT.  3 *                                     |
BOT.  2 *                                     |
BOT.  1 *  5-#10   3-#10   5-#10| 5-#10   4-#10   4-#10*
Vu-STRESS* 10.56   7.67   11.30| 13.80   10.16   8.55*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 80   0, 80   0 250|250 80   0, 80   0 0*

```

```

*****
*
* FRAME 18--BEAM DESIGN *
*
*****

```

```

2- 2 G25      2- 2 G26
F-12 L 2* ( 50X 80, 80) L= 500 | ( 50X 80, 80) L= 840 |
TOP --AS* 26.56 .00 28.76| 28.93 .00 30.63|
BOT.--AS* 24.55 12.23 23.39| 12.23 13.35 12.23|
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10|
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 5-#8 4-#8 5-#8 | 5-#8 4-#8 4-#8 |
Vu-STRESS* 11.99 11.75 12.86| 11.14 8.67 11.41|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 0 80 80, 80 80 80| 80 80 80, 80 80 80|

```

```

2- 2 G27      2- 2 G28
F-12 L 2* ( 50X 80, 80) L= 840 | ( 50X 80, 80) L= 484 *
TOP --AS* 30.35 .00 30.46| 31.24 .00 29.67*
BOT.--AS* 12.23 13.11 12.23| 12.23 13.49 12.23*
TOP 1 * 4-#10 3-#10 4-#10| 4-#10 3-#10 4-#10*
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 4-#8 4-#8 4-#8 | 4-#8 4-#8 4-#8 *
Vu-STRESS* 11.32 8.61 11.34| 11.65 8.92 11.24*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 80 80 80, 80 80 80| 80 80 80, 80 80 0*

```

```

1- 1 G25 (F) 1- 1 G26 (F)
F-12 L 1* ( 60X250,250) L= 500 | ( 60X250,250) L= 840 |
TOP --AS* 32.45 32.45 16.21| 16.21 32.45 16.21|
BOT.--AS* 32.45 32.45 32.45| 32.45 .00 33.28|
TOP 1 * 4-#10 4-#10 3-#10| 3-#10 4-#10 3-#10|
TOP 2 * | |
TOP 3 * | |
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 4-#10 4-#10 4-#10| 4-#10 3-#10 5-#10|
Vu-STRESS* 1.56 5.05 6.10| 10.75 7.98 11.61|
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0 80 0, 80 0 250|250 80 0, 80 0 250|

```

```

1- 1 G27 (F) 1- 1 G28 (F)
F-12 L 1* ( 60X250,250) L= 840 | ( 60X250,250) L= 484 *
TOP --AS* 16.21 32.45 16.21| 16.21 40.32 32.45*
BOT.--AS* 33.57 .00 40.01| 39.99 .00 32.45*
TOP 1 * 3-#10 4-#10 3-#10| 3-#10 5-#10 4-#10*
TOP 2 * | |
TOP 3 * | |
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 5-#10 3-#10 5-#10| 5-#10 4-#10 4-#10*
Vu-STRESS* 10.56 7.67 11.30| 13.80 10.16 8.55*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 80 0, 80 0 250|250 80 0, 80 0 0*

```

```

*****
*
* FRAME 19--BEAM DESIGN *
*
*****

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```

5- 5 WB1 (R) 5- 5 WB2 (R) 5- 5 WB3 (R)
F-3 L 5* ( 40X 65, 65) L= 604 | ( 40X 65, 65) L= 747 | ( 40X 65, 65) L= 874 *
TOP --AS* 10.27 .00 10.27| 13.43 .00 13.43| 20.13 .00 20.13*
BOT.--AS* 2.85 7.83 2.85| 5.11 11.30 5.11| 7.83 12.55 7.83*
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 8.70 8.06 8.82| 11.08 8.21 11.23| 8.11 6.34 8.10*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15|1-#4@15 1-#4@15 1-#4@15 1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 0 60, 0 60 65| 65 0 60, 0 60 65| 65 0 60, 0 60 65*
-WB2

```

```

5- 5 WB4 (R) 5- 5 WB5 (R)
F-3 L 5* ( 40X 65, 65) L= 350 | ( 40X 65, 65) L= 301 *
TOP --AS* 10.27 .00 10.27| 13.43 .00 13.43*
BOT.--AS* 2.85 7.83 2.85| 5.11 11.30 5.11*
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 8.70 8.06 8.82| 11.08 8.21 11.23*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15|1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 0 60, 0 60 65| 65 0 60, 0 60 65*
-WB4

```

```

5- 5 WB6 (R) 5- 5 WB7 (R)
F-3 L 5* ( 45X 65, 65) L= 740 * ( 45X 65, 65) L= 740 *
TOP --AS* 10.27 .00 10.27* 13.43 .00 13.43*
BOT.--AS* 2.85 7.83 2.85* 5.11 11.30 5.11*
TOP 1 * 4-#8 4-#8 4-#8 * 4-#8 4-#8 4-#8 *
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 4-#8 4-#8 4-#8 * 4-#8 4-#8 4-#8 *
Vu-STRESS* 8.70 8.06 8.82* 11.08 8.21 11.23*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15*1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 0 50, 0 50 0* 0 0 50, 0 50 0*

```

```

4- 4 WB1 4- 4 WB2 4- 4 WB3
F-3 L 4* ( 40X 65, 65) L= 604 | ( 40X 65, 65) L= 747 | ( 40X 65, 65) L= 874 *
TOP --AS* 13.48 .00 13.48| 17.77 .00 17.77| 26.91 .00 26.91*
BOT.--AS* 4.92 8.50 4.92| 6.23 14.82 6.23| 8.65 16.59 8.65*
TOP 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 12.25 11.35 12.28| 14.81 12.23 14.86| 13.44 11.28 13.42*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15|1-#4@15 1-#4@15 1-#4@15 1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 60 60, 60 60 65| 65 60 60, 60 60 65| 65 60 60, 60 60 65*
-WB2

```

```

4- 4 WB4 4- 4 WB5
F-3 L 4* ( 40X 65, 65) L= 350 | ( 40X 65, 65) L= 301 *
TOP --AS* 13.48 .00 13.48| 17.77 .00 17.77*
BOT.--AS* 4.92 8.50 4.92| 6.23 14.82 6.23*
TOP 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
TOP 2 * | |
TOP 3 * | |
WEB * | |
BOT. 3 * | |
BOT. 2 * | |
BOT. 1 * 3-#10 3-#10 3-#10| 3-#10 3-#10 3-#10*
Vu-STRESS* 12.25 11.35 12.28| 14.81 12.23 14.86*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15|1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 60 60, 60 60 65| 65 60 60, 60 60 65*
-WB4

```

		4- 4 WB6		4- 4 WB7	
F-3 L 4*	(45X 65, 65) L= 740 *		(45X 65, 65) L= 740 *		
TOP --AS*	13.48	.00	13.48*	17.77	.00 17.77*
BOT.--AS*	4.92	8.50	4.92*	6.23	14.82 6.23*
TOP 1 *	4-#10	4-#10	4-#10*	4-#10	4-#10*
TOP 2 *			*		*
TOP 3 *			*		*
WEB *			*		*
BOT. 3 *			*		*
BOT. 2 *			*		*
BOT. 1 *	4-#10	4-#10	4-#10*	4-#10	4-#10*
Vu-STRESS*	12.25	11.35	12.28*	14.81	12.23 14.86*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15*	1-#4@15	1-#4@15*
BCC,CCB *	0 50	50, 50	50 0*	0 50	50, 50 0*

		2- 2 WB4 (F)		2- 2 WB5 (F)	
F-3 L 1*	(45X250,250) L= 350	(45X250,250) L= 301 *			
TOP --AS*	24.40	24.40	16.21	16.21	24.40 16.21*
BOT.--AS*	24.40	24.40	24.40	24.40	.00 24.40*
TOP 1 *	3-#10	3-#10	3-#10	3-#10	3-#10*
TOP 2 *					*
TOP 3 *					*
WEB *	(7-# 5E.F.)		(7-# 5E.F.)	*	
BOT. 3 *					*
BOT. 2 *					*
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10*
Vu-STRESS*	3.63	5.29	5.61	10.56	7.02 10.45*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15*
BCC,CCB *	0 60	0, 60	0 250 250	60	0, 60 0 250*

-WB4

		3- 3 WB1		3- 3 WB2		3- 3 WB3	
F-3 L 3*	(40X 65, 65) L= 604	(40X 65, 65) L= 747	(40X 65, 65) L= 874 *				
TOP --AS*	18.23	.00	18.23	24.33	.00	24.33	26.91 .00 26.91*
BOT.--AS*	7.13	11.48	7.13	9.52	17.07	9.52	11.76 16.59 11.76*
TOP 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*
TOP 2 *					2-#8		2-#8 *
TOP 3 *							*
WEB *							*
BOT. 3 *							*
BOT. 2 *							*
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*
Vu-STRESS*	16.39	15.93	16.86	17.81	14.23	17.90	14.40 12.25 14.39*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15*
BCC,CCB *	0 60	60, 60	60 65	65 60	60, 60	60 65	65 60 60, 60 60 65*

-WB2

		2- 2 WB6 (F)		2- 2 WB7 (F)	
F-3 L 1*	(45X250,250) L= 740 *	(45X250,250) L= 740 *			
TOP --AS*	24.40	24.40	16.21*	16.21	24.40 16.21*
BOT.--AS*	24.40	24.40	24.40*	24.40	.00 24.40*
TOP 1 *	3-#10	3-#10	3-#10*	3-#10	3-#10*
TOP 2 *			*		*
TOP 3 *			*		*
WEB *	(7-# 5E.F.)	*	(7-# 5E.F.)	*	
BOT. 3 *			*		*
BOT. 2 *			*		*
BOT. 1 *	3-#10	3-#10	3-#10*	3-#10	3-#10*
Vu-STRESS*	3.63	5.29	5.61*	10.56	7.02 10.45*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15*	1-#4@15	1-#4@15*
BCC,CCB *	0 50	0, 50	0 0*	0 50	0, 50 0 0*

		3- 3 WB4		3- 3 WB5	
F-3 L 3*	(40X 65, 65) L= 350	(40X 65, 65) L= 301 *			
TOP --AS*	18.23	.00	18.23	24.33	.00 24.33*
BOT.--AS*	7.13	11.48	7.13	9.52	17.07 9.52*
TOP 1 *	3-#10	3-#10	3-#10	3-#10	3-#10*
TOP 2 *					*
TOP 3 *					*
WEB *					*
BOT. 3 *					*
BOT. 2 *					*
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10*
Vu-STRESS*	16.39	15.93	16.86	17.81	14.23 17.90*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15*
BCC,CCB *	0 60	60, 60	60 65	65 60	60, 60 60 65*

-WB4

 * *
 * FRAME 20--BEAM DESIGN *
 * *

		3- 3 WB6		3- 3 WB7	
F-3 L 3*	(45X 65, 65) L= 740 *	(45X 65, 65) L= 740 *			
TOP --AS*	18.23	.00	18.23*	24.33	.00 24.33*
BOT.--AS*	7.13	11.48	7.13*	9.52	17.07 9.52*
TOP 1 *	4-#10	4-#10	4-#10*	4-#10	4-#10*
TOP 2 *			*		*
TOP 3 *			*		*
WEB *			*		*
BOT. 3 *			*		*
BOT. 2 *			*		*
BOT. 1 *	4-#10	4-#10	4-#10*	4-#10	4-#10*
Vu-STRESS*	16.39	15.93	16.86*	17.81	14.23 17.90*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15*	1-#4@15	1-#4@15*
BCC,CCB *	0 50	50, 50	50 0*	0 50	50, 50 0*

		PB1		PG1		PCG1	
F-3 L 5*	(45X 70, 70) L= 840 *	(45X 70, 70) L= 500	(45X 70, 70) L= 290 *				
TOP --AS*	14.27	.00	14.27*	13.43	.00	13.43	13.43 5.00 .00*
BOT.--AS*	2.85	9.56	2.85*	5.11	11.30	7.11	7.83 2.55 .00*
TOP 1 *	3-#8	3-#8	3-#8 *	3-#8	3-#8	3-#8	3-#8 3-#8 *
TOP 2 *			*				*
TOP 3 *			*				*
WEB *			*				*
BOT. 3 *			*				*
BOT. 2 *			*				*
BOT. 1 *	3-#8	3-#8	3-#8 *	3-#8	3-#8	3-#8	3-#8 3-#8 *
Vu-STRESS*	8.70	8.06	8.82*	11.08	8.21	11.23	8.11 6.34 8.10*
STIRRUPS*1-#4@15	1-#4@20	1-#4@15*	1-#4@15	1-#4@20	1-#4@15	1-#4@15	1-#4@15 1-#4@15*
BCC,CCB *	0 0	80, 0	80 0*	0 0	80, 0	80 70	70 0 80, 0 0 0*

		2- 2 WB1 (F)		2- 2 WB2 (F)		2- 2 WB3 (F)	
F-3 L 1*	(45X250,250) L= 604	(45X250,250) L= 747	(45X250,250) L= 874 *				
TOP --AS*	24.40	24.40	16.21	16.21	24.40	16.21	16.21 24.40 16.21*
BOT.--AS*	24.40	24.40	24.40	24.40	.00	24.40	24.40 24.40 24.40*
TOP 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*
TOP 2 *							*
TOP 3 *							*
WEB *	(7-# 5E.F.)		(7-# 5E.F.)		(7-# 5E.F.)		*
BOT. 3 *							*
BOT. 2 *							*
BOT. 1 *	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10	3-#10*
Vu-STRESS*	3.63	5.29	5.61	10.56	7.02	10.45	5.30 3.86 5.30*
STIRRUPS*1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15	1-#4@15*
BCC,CCB *	0 60	0, 60	0 250 250	60	0, 60	0 250 250	60 0, 60 0 250*

-WB2

		1- 4 Wb1 (R)	
F-3 L 5*	(30X 70, 70) L= 533 *		
TOP --AS*	13.23	.00	13.23*
BOT.--AS*	7.13	11.48	7.13*
TOP 1 *	3-#8	3-#8	3-#8 *
TOP 2 *			*
TOP 3 *			*
WEB *			*
BOT. 3 *			*
BOT. 2 *			*
BOT. 1 *	3-#8	3-#8	3-#8 *
Vu-STRESS*	16.39	15.93	16.86*
STIRRUPS*2-#4@15	2-#4@15	2-#4@15*	
BCC,CCB *	0 415	415,280	280 0*

```

          2- 2 WB1 (F)
F-c L 1* ( 45X250,250) L= 533 *
TOP --AS* 14.40 14.40 14.40*
BOT.--AS* 14.40 14.40 14.40*
TOP 1 * 3-#8 3-#8 3-#8 *
TOP 2 *
TOP 3 *
WEB * ( 7-# 5E.F. ) *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 *
Vu-STRESS* 3.63 5.29 5.61*
STIRRUPS*1-#4@15 1-#4@15 1-#4@15*
BCC,CCB * 0 415 0,280 0 0*

```

```

*****
*
* GROUP 1--BEAM DESIGN *
*
*****

```

```

          2- 2 b1 (F)          2- 2 b2 (F)
F-c L 2* ( 30X250,250) L= 960 | ( 30X250,250) L=1090 *
TOP --AS* 24.12 16.02 6.21| 6.21 16.47 24.37*
BOT.--AS* 24.12 .00 24.12| 24.37 .00 24.27*
TOP 1 * 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 *
TOP 2 *
TOP 3 *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 3.63 5.29 5.61| 3.63 5.29 5.61*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 60*

```

b3

```

          2- 4 b1 (R)          2- 4 b2 (R)          1- 4 b3 (R)
F-c L 2* ( 35X 60, 60) L= 960 | ( 35X 60, 60) L=1090 | ( 35X 60, 60) L= 840 |
TOP --AS* 19.52 .00 19.52| 21.50 .00 21.50| 17.78 .00 17.78|
BOT.--AS* .00 12.08 .00| .00 13.25 .00| .00 11.05 .00|
TOP 1 * 4-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 4-#8 |
TOP 2 *
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01| 4.00 3.57 4.01|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@20 1-#4@15|
BCC,CCB * 0 0 50, 0 50 60|60 0 50, 0 50 60|60 0 50, 0 50 60|

```

```

          1- 4 b4 (R)          1- 4 b5 (R)          2- 4 b6 (R)
F-c L 2* ( 35X 60, 60) L= 840 * ( 35X 60, 60) L= 840 * ( 35X 60, 60) L= 515 |
TOP --AS* 17.78 .00 17.78* 17.78 .00 17.78* 7.10 .00 7.10|
BOT.--AS* .00 11.05 .00* .00 11.05 .00* .00 6.02 .00|
TOP 1 * 4-#8 3-#8 4-#8 * 4-#8 3-#8 4-#8 * 3-#8 3-#8 3-#8 |
TOP 2 *
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01* 4.00 3.57 4.01* 4.00 3.57 4.01|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 60 0 50, 0 50 60*60 0 50, 0 50 0*0 0 50, 0 50 60|

```

b4 -b4

```

          2- 4 b7 (R)          2- 4 b8 (R)          2- 4 b9 (R)
F-c L 2* ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 * ( 35X 60, 60) L= 515 |
TOP --AS* 24.62 .00 24.62| 24.62 .00 24.62* 6.75 .00 6.75|
BOT.--AS* .00 15.06 .00| .00 15.06 .00* .00 5.72 .00|
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
TOP 2 * 2-#8 2-#8 | 2-#8 2-#8 * 2-#8 2-#8 |
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01* 4.00 3.57 4.01|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 60 0 50, 0 50 60|60 0 50, 0 50 60*0 0 50, 0 50 60|

```

-b7

```

          2- 4 b10 (R)          2- 4 b11 (R)          1- 4 b12 (R)
F-c L 2* ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 * ( 35X 60, 60) L= 515 |
TOP --AS* 24.08 .00 24.08| 24.08 .00 24.08* 6.90 .00 6.90|
BOT.--AS* .00 14.75 .00| .00 14.75 .00* .00 5.84 .00|
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
TOP 2 * 2-#8 2-#8 | 2-#8 2-#8 * 2-#8 2-#8 |
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01* 4.00 3.57 4.01|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 60 0 50, 0 50 60|60 0 50, 0 50 60*0 0 50, 0 50 60|

```

-b10

```

          1- 4 b13 (R)          1- 4 b14 (R)          1- 4 b15 (R)
F-c L 2* ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 * ( 35X 60, 60) L= 515 *
TOP --AS* 17.78 .00 17.78| 17.78 .00 17.78* 6.75 .00 6.75*
BOT.--AS* .00 11.05 .00| .00 11.05 .00* .00 5.72 .00*
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 * 3-#8 3-#8 3-#8 *
TOP 2 *
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01* 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 60 0 50, 0 50 60|60 0 50, 0 50 60*60 0 50, 0 50 0*

```

-b13 -b14

```

          2- 2 b4a (R)          2- 2 b5a (R)          2- 2 b6a (R)
F-c L 2* ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 *
TOP --AS* 17.78 .00 17.78| 19.13 .00 19.13| 19.13 .00 19.13*
BOT.--AS* .00 11.05 .00| .00 11.85 .00| .00 11.85 .00*
TOP 1 * 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 *
TOP 2 *
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01| 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 60 0 50, 0 50 60|60 0 50, 0 50 60|60 0 50, 0 50 0*

```

b4

```

          2- 2 b16 (R)          2- 2 b17 (R)          2- 2 b18 (R)
F-c L 2* ( 35X 60, 60) L= 515 | ( 35X 60, 60) L= 840 | ( 35X 60, 60) L= 840 |
TOP --AS* 7.29 .00 7.29| 19.13 .00 19.13| 19.13 .00 19.13|
BOT.--AS* .00 6.16 .00| .00 11.85 .00| .00 11.85 .00|
TOP 1 * 3-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 | 4-#8 3-#8 4-#8 |
TOP 2 *
TOP 3 *
WEB *
BOT. 3 *
BOT. 2 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01| 4.00 3.57 4.01|
STIRRUPS*1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15|
BCC,CCB * 0 0 50, 0 50 60|60 0 50, 0 50 60|60 0 50, 0 50 60|

```

```

2- 2 b19      2- 2 b20
F-c L 2* ( 35X 60, 60) L= 775 * ( 35X 60, 60) L= 581 *
TOP --AS* 17.76 .00 17.76* 12.19 .00 12.19*
BOT. --AS* .00 11.04 .00* .00 7.66 .00*
TOP 1 * 4-#8 3-#8 4-#8 * 4-#8 3-#8 3-#8 *
TOP 2 * * * *
TOP 3 * * * *
WEB * * * *
BOT. 3 * * * *
BOT. 2 * * * *
BOT. 1 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01* 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@20 1-#4@15*1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 60 0 50, 0 50 0* 60 0 50, 0 80 0*

```

-b18

```

2- 2 b6 (F)      2- 2 b7 (F)      2- 2 b8 (F)
F-c L 2* ( 30X250,250) L= 515 | ( 30X250,250) L= 840 | ( 30X250,250) L= 840 *
TOP --AS* .00 4.22 .001 .00 20.68 .001 .00 20.68 .02*
BOT. --AS* 6.56 .00 6.56| 24.40 .00 24.40| 24.40 .00 24.40*
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
TOP 2 * * * | 2-#7 | 2-#7 *
TOP 3 * * * | | *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * * * | | *
BOT. 2 * * * 2-#8 | 2-#8 2-#8 | 2-#8 2-#8 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01| 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 250|250 60 0, 60 0 250*

```

-b7

```

2- 2 b9 (F)      2- 2 b10 (F)      2- 2 b11 (F)
F-c L 2* ( 30X250,250) L= 515 | ( 30X250,250) L= 840 | ( 30X250,250) L= 840 *
TOP --AS* .00 4.22 .001 .00 19.79 .001 .00 19.79 .00*
BOT. --AS* 6.56 .00 6.56| 24.37 .00 24.37| 24.37 .00 24.37*
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 *
TOP 2 * * * | | *
TOP 3 * * * | | *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * * * | | *
BOT. 2 * * * 2-#8 | 2-#8 2-#8 | 2-#8 2-#8 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01| 4.00 3.57 4.01| 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@20 1-#4@15|1-#4@15 1-#4@20 1-#4@15*
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 250|250 60 0, 60 0 250*

```

-b10

```

*****
*
* GROUP 2--BEAM DESIGN *
*
*****

```

```

1- 1 b3 (F)      1- 1 b4 (F)      1- 1 b4a (F)
F-c L 1* ( 30X250,250) L= 840 | ( 30X250,250) L= 840 * ( 30X250,250) L= 840 |
TOP --AS* 23.58 15.03 2.15| 2.15 15.03 2.15* 2.15 15.03 2.15|
BOT. --AS* 23.58 .00 23.58| 23.58 .00 23.58* 23.58 .00 23.58|
TOP 1 * 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 * 3-#8 4-#8 3-#8 |
TOP 2 * 2-#7 | * * |
TOP 3 * * * | * * |
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) * ( 7-# 5E.F. ) *
BOT. 3 * * * | * * |
BOT. 2 * 2-#7 2-#7 | 2-#7 2-#7 2-#7 |
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 |
Vu-STRESS* 3.63 5.29 5.61| 3.63 5.29 5.61* 3.63 5.29 5.61|
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 250*250 60 0, 60 0 250|

```

b4 -b4

```

1- 1 b4b (F)      1- 1 b5 (F)      1- 1 b5a (F)
F-c L 1* ( 30X250,250) L= 840 | ( 30X250,250) L= 840 * ( 30X250,250) L= 840 *
TOP --AS* 2.15 15.03 2.15| 2.15 15.03 2.15* 2.15 15.03 23.58*
BOT. --AS* 23.58 .00 23.58| 23.58 .00 23.58* 23.58 .00 23.58*
TOP 1 * 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 * 3-#8 3-#8 3-#8 *
TOP 2 * * * | * * 2-#7 *
TOP 3 * * * | * * *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) * ( 7-# 5E.F. ) *
BOT. 3 * * * | * * *
BOT. 2 * 2-#7 2-#7 | 2-#7 2-#7 2-#7 * 2-#7 2-#7 2-#7 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 *
Vu-STRESS* 3.63 5.29 5.61| 3.63 5.29 5.61* 3.63 5.29 5.61*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 60 0, 60 0 250|250 60 0, 60 0 250*250 60 0, 60 0 0*

```

b5 -b5

```

1- 1 b12 (F)      1- 1 b13 (F)      1- 1 b14 (F)
F-c L 1* ( 30X250,250) L= 515 | ( 30X250,250) L= 840 | ( 30X250,250) L= 840 *
TOP --AS* 6.56 4.22 6.56| 2.15 15.03 2.15| 2.15 15.03 2.15*
BOT. --AS* 6.56 .00 6.56| 23.58 .00 23.58| 23.58 .00 23.58*
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 *
TOP 2 * * * | | *
TOP 3 * * * | | *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * * * | | *
BOT. 2 * * * 2-#7 | 2-#7 2-#7 2-#7 | 2-#7 2-#7 2-#7 *
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01| 3.63 5.29 5.61| 3.63 5.29 5.61*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15*
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 250|250 60 0, 60 0 250*

```

-b13

```

1- 1 b15 (F)      1- 1 b16 (F)      1- 1 b17 (F)
F-c L 1* ( 30X250,250) L= 515 | ( 30X250,250) L= 840 | ( 30X250,250) L= 840 |
TOP --AS* 6.56 4.22 6.56| 2.15 15.03 2.15| 2.15 15.03 2.15|
BOT. --AS* 6.56 .00 6.56| 23.58 .00 23.58| 23.58 .00 23.58|
TOP 1 * 3-#8 3-#8 3-#8 | 3-#8 4-#8 3-#8 | 3-#8 4-#8 3-#8 |
TOP 2 * * * | | *
TOP 3 * * * | | *
WEB * ( 7-# 5E.F. ) | ( 7-# 5E.F. ) | ( 7-# 5E.F. ) *
BOT. 3 * * * | | *
BOT. 2 * * * 2-#7 | 2-#7 2-#7 2-#7 | 2-#7 2-#7 2-#7 |
BOT. 1 * 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 | 3-#8 3-#8 3-#8 |
Vu-STRESS* 4.00 3.57 4.01| 3.63 5.29 5.61| 3.63 5.29 5.61|
STIRRUPS*1-#4@15 1-#4@25 1-#4@15|1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15|
BCC,CCB * 0 60 0, 60 0 250|250 60 0, 60 0 250|250 60 0, 60 0 250|

```

```

1- 1 b18 (F)      1- 1 b19 (F)      1- 1 b20 (F)
F-c L 2* ( 30X250,250) L= 840 * ( 30X250,250) L= 775 * ( 30X250,250) L= 591 *
TOP --AS* 6.56 4.22 6.56* 6.56 4.22 6.56* 6.56 4.22 6.56*
BOT. --AS* 6.56 .00 6.56* 6.56 .00 6.56* 6.56 .00 6.56*
TOP 1 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 *
TOP 2 * * * * *
TOP 3 * * * * *
WEB * ( 7-# 5E.F. ) * ( 7-# 5E.F. ) * ( 7-# 5E.F. ) *
BOT. 3 * * * * *
BOT. 2 * 2-#7 * 2-#7 * 2-#7 *
BOT. 1 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 * 3-#8 3-#8 3-#8 *
Vu-STRESS* 4.00 3.57 4.01* 4.00 3.57 4.01* 4.00 3.57 4.01*
STIRRUPS*1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15*1-#4@15 1-#4@25 1-#4@15*
BCC,CCB *250 60 0, 60 0 0*250 60 0, 60 0 0*250 60 0, 60 0 0*

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-b17

-b17

```

*****
* COLUMN GROUP 1 * COLUMN NAME: C1
*****

TOTAL COLUMNS 15
COLUMN NUMBER 1 11 12 13 20 21 22 30 31 32
               40 41 42 43 51

[ C1 ] FLOOR= 4 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 5- 5 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

[ C1 ] FLOOR= 3 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 4- 4 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

[ C1 ] FLOOR= 2 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 3- 3 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 4-#10, 6-# 8 Y: 4-#10, 6-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

[ C1 ] FLOOR= 1 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 2- 2 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 4-#10, 6-# 8 Y: 4-#10, 6-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

*****
* COLUMN GROUP 2 * COLUMN NAME: C2
*****

TOTAL COLUMNS 41
COLUMN NUMBER 2 3 4 5 6 7 8 9 14 15
               16 17 18 19 23 24 25 26 27 28
               29 33 34 35 36 37 38 39 44 45
               46 47 48 49 50 52 53 54 55 56
               57

[ C2 ] FLOOR= 4 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 5- 5 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10, 8-# 8 Y: 0-#10, 8-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 4 Y: 4]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 2]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 4 Y: 4]

[ C2 ] FLOOR= 3 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 4- 4 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10, 8-# 8 Y: 0-#10, 8-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 4 Y: 4]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 2]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 4 Y: 4]

[ C2 ] FLOOR= 2 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 3- 3 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

[ C2 ] FLOOR= 1 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 2- 2 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

```

```

*****
* COLUMN GROUP 3 * COLUMN NAME: C3
*****

TOTAL COLUMNS 6
COLUMN NUMBER 58 59 60 61 62 63

[ C3 ] FLOOR= 4 SECTION(based on y-direction):B(width)= 50.0cm
LEVEL= 5- 5 D(depth)= 60.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 4-#10, 2-# 8 Y: 4-#10, 0-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 1]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]

[ C3 ] FLOOR= 3 SECTION(based on y-direction):B(width)= 50.0cm
LEVEL= 4- 4 D(depth)= 60.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 4-#10, 2-# 8 Y: 4-#10, 0-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 1]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]

[ C3 ] FLOOR= 2 SECTION(based on y-direction):B(width)= 50.0cm
LEVEL= 3- 3 D(depth)= 60.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 4-#10, 2-# 8 Y: 4-#10, 0-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 1]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 2]

*****
* COLUMN GROUP 4 * COLUMN NAME: PC1
*****

TOTAL COLUMNS 1
COLUMN NUMBER 10

[ PC1 ] FLOOR= 3 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 4- 4 D(depth)= 50.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10, 4-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 2 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 1 Y: 2]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 5]

[ PC1 ] FLOOR= 2 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 3- 3 D(depth)= 50.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10, 4-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 2 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 1 Y: 2]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 5]

[ PC1 ] FLOOR= 1 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 2- 2 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 2 Y: 2]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

*****
* COLUMN GROUP 5 * COLUMN NAME: PC2
*****

TOTAL COLUMNS 3
COLUMN NUMBER 64 65 66

[ C2 ] FLOOR= 2 SECTION(based on y-direction):B(width)= 80.0cm
LEVEL= 3- 3 D(depth)= 80.0cm
AXIAL BARS C: 4-#10, 0-# 8 X: 0-#10,10-# 8 Y: 0-#10,10-# 8
CONFINEMENT: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]
SHEAR DESIGN: [HOOP:#4@ 10,TIES-- X: 3 Y: 3]
JOINT DESIGN: [HOOP:#4@ 10,TIES-- X: 5 Y: 5]

```

DESIGN OF SLABS BY USD

fc'= 280.0 (kg/cm**2)
fy= 2800.0 (kg/cm**2) for #3
fy= 4200.0 (kg/cm**2) for #4-#10
covering= 7.5 (cm)

+-----+
| FS1 | (T=60cm,Tmin= 9cm)
+-----+

S x L = 4.20 x 4.20 (m) Discn. edges: S--1,L--1
WD= 4.70 WL= 2.50 t/(m*m) B= .50(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	9.36	4.78	7.07	9.36	4.78	7.07
AS	12.00	12.00	12.00	12.00	12.00	12.00
STEEL	#5@16	#5@16	#5@16	#5@16	#5@16	#5@16
SHEAR-STRESS	vu= 3.87 vc= 8.87 Use : S-#5@15cm, L-#5@15cm					

DESIGN OF SLABS BY USD

fc'= 280.0 (kg/cm**2)
fy= 2800.0 (kg/cm**2) for #3
fy= 4200.0 (kg/cm**2) for #4-#10
covering= 7.5 (cm)

+-----+
| BS1 | (T=18cm,Tmin= 9cm)
+-----+

S x L = 4.20 x 4.20 (m) Discn. edges: S--1,L--1
WD= .60 WL= 1.00 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	2.20	1.12	1.66	2.20	1.12	1.66
AS	3.96	3.60	3.60	3.96	3.60	3.60
STEEL	#4@31	#4@35	#4@35	#4@31	#4@35	#4@35
SHEAR-STRESS	vu= 3.88 vc= 8.87 Use : S-#4@15cm, L-#4@15cm					

+-----+
| 1S1 | (T=18cm,Tmin= 9cm)
+-----+

S x L = 4.20 x 4.20 (m) Discn. edges: S--1,L--1
WD= .60 WL= 1.00 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	2.20	1.12	1.66	2.20	1.12	1.66
AS	3.96	3.60	3.60	3.96	3.60	3.60
STEEL	#4@31	#4@35	#4@35	#4@31	#4@35	#4@35
SHEAR-STRESS	vu= 3.88 vc= 8.87 Use : S-#4@15cm, L-#4@15cm					

+-----+
| 1S1 | (T=18cm,Tmin=17cm)
+-----+

S x L = 6.00 x 7.50 (m) Discn. edges: S--1,L--1
WD= .70 WL= .50 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	4.22	2.11	3.16	3.23	1.65	2.44
AS	7.79	3.80	5.77	5.90	3.60	4.41
STEEL	#4@16	#4@33	#4@21	#4@21	#4@35	#4@28
SHEAR-STRESS	vu= 4.09 vc= 8.87 Use : S-#4@15cm, L-#4@15cm					

+-----+
| S1 | (T=18cm,Tmin= 9cm)
+-----+

S x L = 4.20 x 4.20 (m) Discn. edges: S--1,L--1
WD= .70 WL= .50 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	1.58	.81	1.19	1.58	.81	1.19
AS	3.60	3.60	3.60	3.60	3.60	3.60
STEEL	#4@35	#4@35	#4@35	#4@35	#4@35	#4@35
SHEAR-STRESS	vu= 2.80 vc= 8.87 Use : S-#4@20cm, L-#4@20cm					

+-----+
| S2 | (T=30cm,Tmin= 8cm)
+-----+

S x L = 2.65 x 6.00 (m) Discn. edges: S--1,L--1
WD= .70 WL= .50 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	1.16	.58	.87	.63	.32	.48
AS	6.00	6.00	6.00	6.00	6.00	6.00
STEEL	#4@21	#4@21	#4@21	#4@21	#4@21	#4@21
SHEAR-STRESS	vu= .84 vc= 8.87 Use : S-#4@20cm, L-#4@20cm					

+-----+
| S3 | (T=25cm,Tmin= 9cm)
+-----+

S x L = 4.20 x 4.20 (m) Discn. edges: S--1,L--1
WD= .70 WL= .75 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	1.95	.99	1.47	1.95	.99	1.47
AS	5.00	5.00	5.00	5.00	5.00	5.00
STEEL	#4@25	#4@25	#4@25	#4@25	#4@25	#4@25
SHEAR-STRESS	vu= 2.27 vc= 8.87 Use : S-#4@15cm, L-#4@15cm					

+-----+
| WS1 | (T=25cm,Tmin=17cm)
+-----+

S x L = 6.00 x 7.50 (m) Discn. edges: S--1,L--1
WD= .70 WL= .75 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	5.20	2.60	3.90	3.98	2.03	3.00
AS	6.41	5.00	5.00	5.00	5.00	5.00
STEEL	#4@19	#4@21	#4@21	#4@21	#4@21	#4@21
SHEAR-STRESS	vu= 3.35 vc= 8.87 Use : S-#4@15cm, L-#4@15cm					

+-----+
| CS1 | (T=18cm,Tmin= 5cm)
+-----+

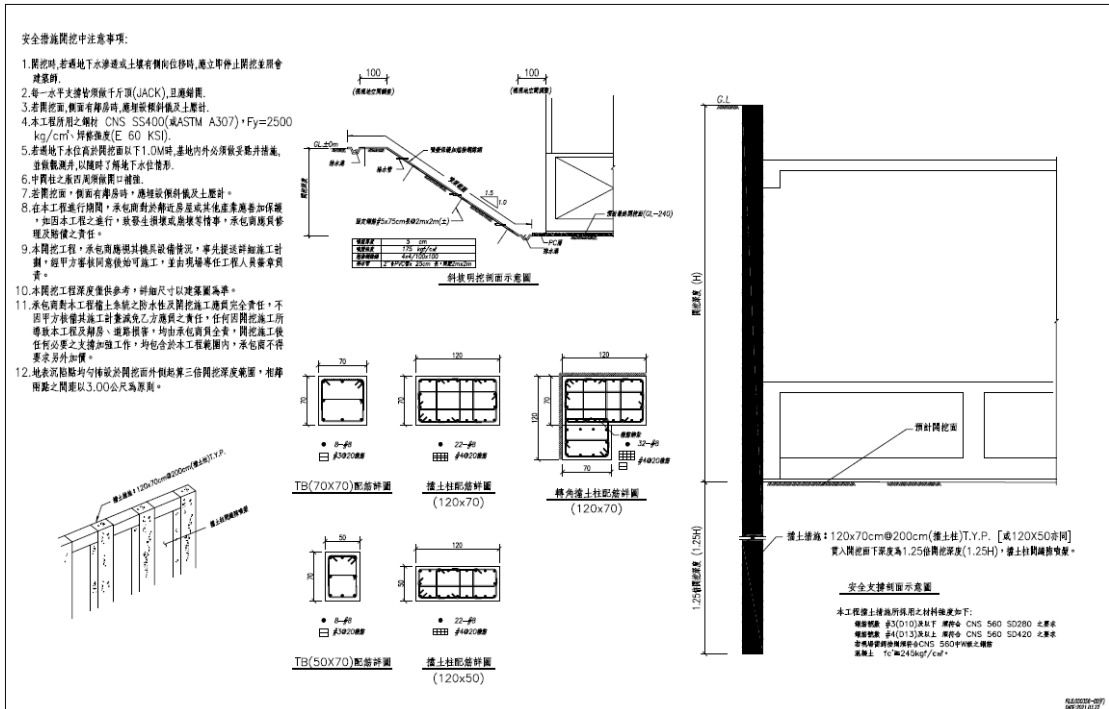
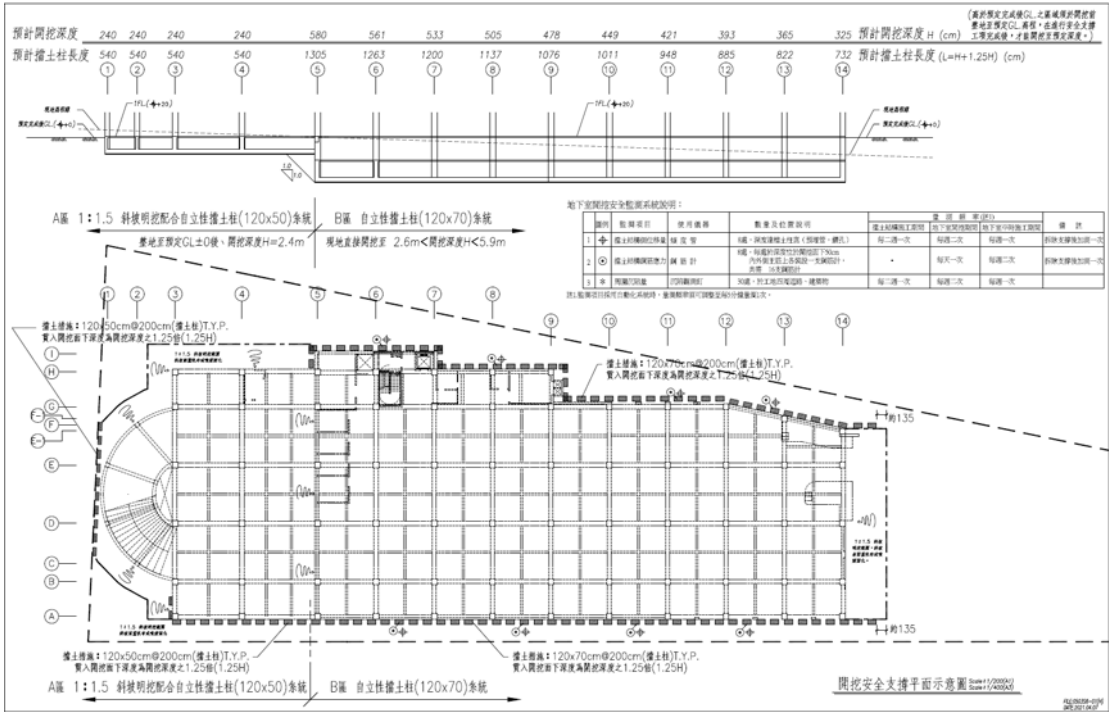
S x L = 1.50 x 6.00 (m) Discn. edges: S--1,L--1
WD= .70 WL= .50 t/(m*m) B= .40(m)
===== SHORT SPAN ===== LONG SPAN =====

	-M(cont)	-M(disc)	+M	-M(cont)	-M(disc)	+M
M(t-m)	.37	.19	.28	.20	.10	.15
AS	3.60	3.60	3.60	3.60	3.60	3.60
STEEL	#4@35	#4@35	#4@35	#4@35	#4@35	#4@35
SHEAR-STRESS	vu= .86 vc= 8.87 Use : S-#4@20cm, L-#4@20cm					

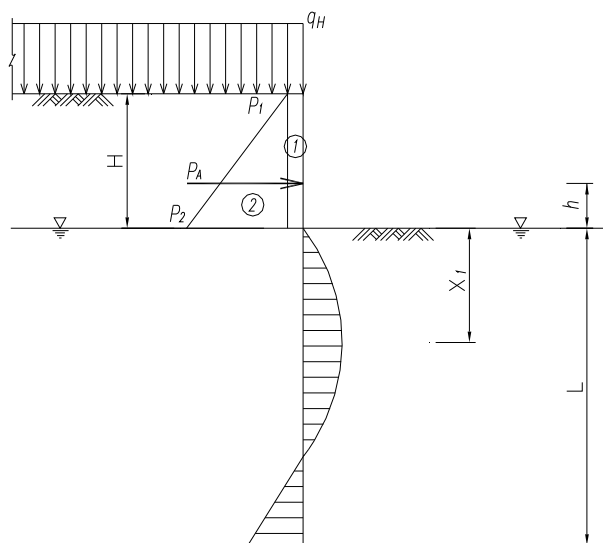
十五、開挖安全措施說明

本工程基礎型式為筏式基礎，預計開挖深度約 2.40m~5.80 m 不等，皆超過 1.50 m，相關開挖安全措施圖面如下所示，分析檢討如後。

另外，應注意施工時鄰房之安全觀測，建議必要時於施工前先行委託專業單位進行鄰房現況鑑定，以釐清鄰房現況，降低施工中鄰房損傷時之無謂的糾紛。



(1) 自立擋土措施貫入深度分析



開挖斷面資料 —

樁長 13.05 m 、 H = 5.80 m 、 L = 7.25 m

開挖面以上土層資料 —

$\gamma_{s1} = 2.10 \text{ T/m}^3$ $c_1 = 0.00 \text{ T/m}^2$
 $\phi_1 = 35.00^\circ$ $q_H = 2.00 \text{ T/m}^2$

開挖面以下土層資料 —

$\gamma_{s2} = 2.13 \text{ T/m}^3$ $c_2 = 0.00 \text{ T/m}^2$
 $\phi_2 = 33.80^\circ$ $q_H' = 0.00 \text{ T/m}^2$

開挖穩定分析 —

$$P_1 = q_H \times \tan^2(45^\circ - \phi_1/2) - 2c_1 \times \tan(45^\circ - \phi_1/2) = 0.542 \text{ T/m/m}$$

$$P_2 = [\gamma_{s1}H + q_H] \times \tan^2(45^\circ - \phi_1/2) - 2c_1 \times \tan(45^\circ - \phi_1/2) = 3.843 \text{ T/m/m}$$

$$P_A = 12.715 \text{ T/m} \quad h = 2.17 \text{ m}$$

$$X_1 = \frac{L \times (3L + 4h)}{4 \times (2L + 3h)} = 2.625 \text{ m}$$

$$P_{\max} = \frac{[3P_A \times (3L + 4h)^2]}{[4L^2 \times (2L + 3h)]} = 7.999 \text{ T/m/m}$$

$$P_{X1} = [(\gamma_{s2} - \gamma_w)X_1 + q_H'] \times \tan^2(45^\circ + \phi_2/2) + [\gamma_w X_1] + [2c_2 \times \tan(45^\circ + \phi_2/2)] = 13.030 \text{ T/m/m}$$

$$\therefore \frac{P_{X1}}{P_{\max}} = 1.629 \geq 1.5$$

$\therefore$ 擋土柱擋土措施貫入深度合格

(2) 擋土措施應力檢討

最大彎矩及剪力計算 —

$$X^3 - 3X_1X^2 + (3X_1^2P_A) / P_{\max} = 0$$

$$\text{將計算所得數值代入} \quad X^3 - 7.87524 \quad X^2 + \quad 32.8642 = 0$$

$$\text{得} \quad X = \quad 2.465$$

$$\text{則} \quad M_{\max} = -P_A x(h+X) = -58.96 \text{ T-m/m}$$

$$Q_{\max} = -P_A = -12.72 \text{ T/m}$$

Use : 120cm x70cm 擋土柱 @ 2.00 m 設置1支

DESIGN OF RECTANGULAR COLUMN BY USD

$$f_c' = 210. (\text{kg/cm}^2)$$

$$f_y = 4200. (\text{kg/cm}^2)$$

$$f_{yv} = 4200. (\text{kg/cm}^2)$$

$$\text{covering} = 8. (\text{cm})$$

$$AMX = .00\text{tm} \quad AMY = 117.92\text{tm} \quad PU = 25.44\text{t} \quad Vu = 16.37\text{t}$$

SECTION(based on y-direction): B(width)=120.0cm

D(depth)= 70.0cm

$$\text{UNIAXIAL DESIGN:} \quad Pt = .0137 \quad Ast = 114.8 \quad Asx = 8.40(7.3\%)$$

$$Asy = 106.40(92.7\%)$$

$$\text{BIAXIAL DESIGN:} \quad Pt = .0155 \quad .0140 \quad .0135 \quad .0131 \quad .0130 \quad .0128 \quad .0127$$

$$Py/Pt = .0000 \quad .2500 \quad .4000 \quad .5000 \quad .6000 \quad .7500 \quad 1.0000$$

$$Asx = 130.5 \quad 88.3 \quad 67.9 \quad 55.2 \quad 43.7 \quad 26.9 \quad .0$$

$$Asy = .0 \quad 29.4 \quad 45.3 \quad 55.2 \quad 65.6 \quad 80.8 \quad 106.4$$

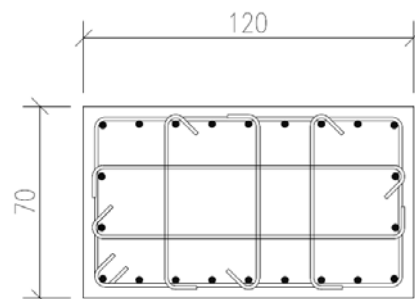
$$Ast = 130.5 \quad 117.7 \quad 113.2 \quad 110.3 \quad 109.3 \quad 107.7 \quad 106.4$$

$$\text{AXIAL BARS C:} \quad 4\text{-}\#8, 0\text{-}\#7 \quad X: 2\text{-}\#8, 0\text{-}\#7 \quad Y: 16\text{-}\#8, 0\text{-}\#7$$

$$\text{SHEAR DESIGN:} \quad [\text{HOOP:}\#4@25, \text{TIES-- X: 1 Y: 3}]$$

故擋土柱(120cmx70cm)

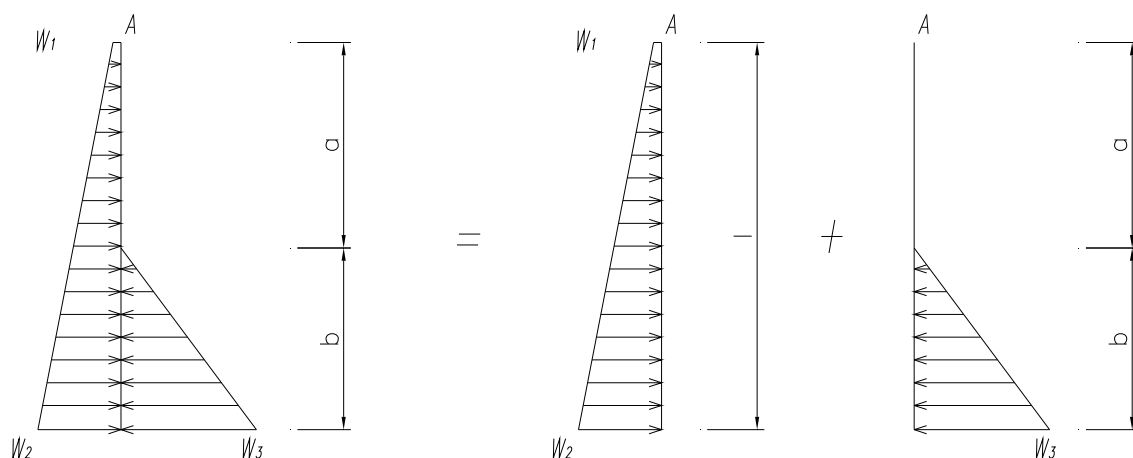
配筋如右：



● 22-#8

■ #4@20 箍筋

(3) 自立擋土措施樁頂變形量估算



擋土措施材料規格

Use : 120cm x70cm 擋土柱 @ 2.00 m 設置1支

則單位寬度(1.00m)性質如下 —

$$E = 1.74E+06 \text{ T/m}^2 \quad I = 0.01715 \text{ m}^4$$

$$W_1 = q_H \times \tan^2(45^\circ - \phi_1/2) - 2c_1 \times \tan(45^\circ - \phi_1/2) = 0.5420 \text{ T/m/m}$$

$$W_2 = [\gamma_{s1}L + q_H] \times \tan^2(45^\circ - \phi_1/2) - 2c_1 \times \tan(45^\circ - \phi_1/2) = 1.5729 \text{ T/m/m}$$

$$W_3 = [\gamma_{s2}b + q_H'] \times \tan^2(45^\circ + \phi_2/2) + 2c_2 \times \tan(45^\circ + \phi_2/2) = 11.2065 \text{ T/m/m}$$

$$\delta_{A1} = \frac{(11W_1 + 4W_2)L^4}{120EI} = 0.97 \text{ cm}$$

$$\delta_{A2} = \frac{W_3b(5ab^2 + 4b^3)}{120EI} = 0.02 \text{ cm}$$

$$\Delta_{A1} = \delta_{A1} - \delta_{A2} = 0.95 \text{ cm}$$

$$W_2' = [\gamma_{s1}a + q_H] \times \tan^2(45^\circ - \phi_1/2) - 2c_1 \times \tan(45^\circ - \phi_1/2) = 4.4117 \text{ T/m/m}$$

$$\Delta_{A2} = \frac{(11W_1 + 4W_2')a'^4}{120EI} = 1.41 \text{ cm}$$

$$\Delta_A = \text{Max}(\Delta_{A1}, \Delta_{A2}) = 1.41 \text{ cm}$$