DUBAI RAPID LINK CONSORTIUM

DUBAI METRO PROJECT OFFICE

Contract No.: DM001	CDRL No.:
Project Title: DUBAI METRO	CDRL Title:

Document Title:

Rashidiya Main Depot
Structural Design Calculations
Building 24 – Electrical Store
DCP 3 Submission

Revision History

MARK	DATE	DESCRIPTION	RAIL	CIVIL
A4	16-May-07	Second issue	Signed below	Signed below
A2	12-Nov-06	First Issue	Signed below	Signed below

APPROVED	Project Director	S. Shimamura N/A	
	Deputy Project Director	S. Sasaki	
		Checked By (Project Director)	Y. Hiraoka
		Checked By (QA/QC Manager)	J. Whorlow
Checked By	N/A	Checked By (Project Manager)	N/A
Checked By	N/A	Checked By (Engineering Manager)	M. Makino
Prepared By	N/A	Issued By	P. Maney
DATE	-	DATE	16 May 2007

RAIL SYSTEM	CIVIL JV

CONTRACTOR'S DOCUMENT No.:	DOCUMENT No.:	REVISION
	DM001-E-MAO-CDP-DR-DCC-371952	**A4**

Dubai Metro, UAE
Rashidiya Depot

Structural Design Calculation
(Enhanced Design)
Building 24 – Electrical Store

May 2007

ATKINS
WS Atkins & Partners Overseas
Supported by Meinhardt Infrastructure

Client: JT Metro JV	**Contract No. (if any):**
Project Title: Dubai Metro, UAE	**Project No.:** JRD4561
Document No.: DM001-E-MAO-CDP-DR-DCC-371952	**Controlled Copy No.:**
Document Title: Main Depot- Rashidiya Structural Design Calculation (Enhanced Design) Building 24 – Electrical Store	
Covering Letter / Transmittal Ref. No.: To be advised	**Date of Issue:** 02 May 2007

Revision, Review and Approval/Authorization Records

			WRB for	
A4	Issued for Approval (ENHANCED DESIGN)	CK Lam May 07	P.Shepherd-Smith May 07	B. Maney May 07
A3	Issued for Approval	CK Lam Nov 06	P.Shepherd-Smith Nov 06	B. Maney Nov 06
A2	Issued for Approval	CK Lam Nov 06	P.Shepherd-Smith Nov 06	B. Maney Nov 06
A1	Internal Review	CK Lam Oct 06	P.Shepherd-Smith Oct 06	B. Maney Oct 06
Revision	Description	Prepared by / date	Reviewed by / date	App. or Auth. by / date

Distribution (if insufficient space, please use separate paper)

Controlled Copy No.	Issued to
1	JT Metro JV
2	Atkins (Office Copy)
3	Atkins (P. Shepherd-Smith)
4	Meinhardt Infrastructure (CK Lam)

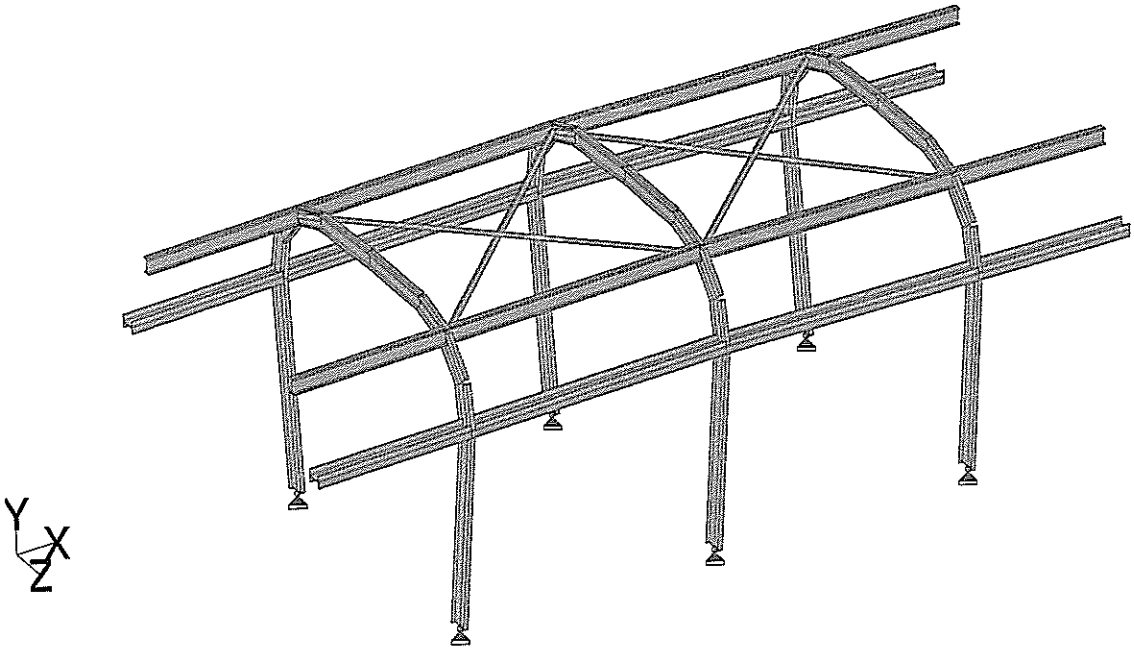
Note: App. and Auth. mean "Approved" and "Authorized" respectively.

Table of Contents

1 TYPICAL PORTAL FRAME TRANSVERSE ANALYSIS.....001
2 FOUNDATION DESIGN CHECK 032
3 CONNECTIONS DESIGN 037

1 TYPICAL PORTAL FRAME TRANSVERSE ANALYSIS

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



Load 1

ELECTRICAL STORE

(RASHIDIYA - BUILDING 24)

Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site:	Dubai Metro Project Electrical Store Loadings	Date:	27-Apr-07	Job No.:	68010.01
		Designed by:	Rudy	Sheet No.:	

Roof Loadings :

DL

W_{DL}:

Sheeting	0.1 kPa		
Purlins	0.1 kPa		
Insulation	0.3 kPa		
M&E Finishes	0.3 kPa		
	0.8 kPa	x 1 =	0.8 kN/m

LL

	0.6 kPa	x 1 =	0.6 kN/m

P_{LL}: A/C equipment S/W
= 5 kN (point load at mid-span of bay 2, 4)

Notional horizontal load, Ph
(Load Case of 1.4DL + 1.6LL)

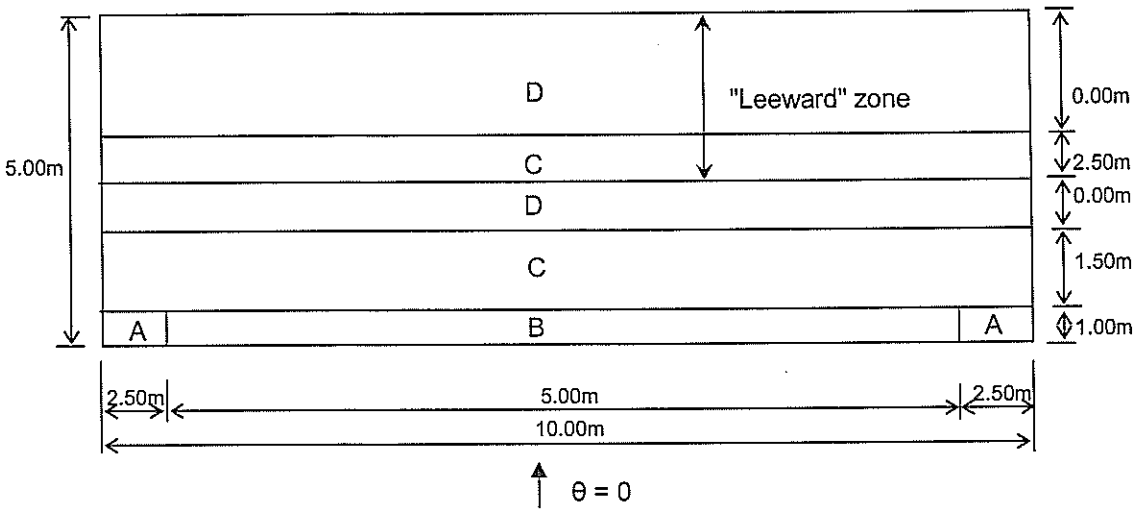
	Total Dead Load	Total Live Load
Tributary load area for the roof		
= (10+2*3)*(5+2*1.5)	102.4 kN	81.8 kN
= 128 m2		(Including A/C equipment)

	Total Dead Load	Total Live Load
Tributary load area for the wall		
= 6*2*(10+2*3+5+2*1.5)	144 kN	
= 288 m2	(excluding the M&E Finishes)	

Site:	Dubai Metro Project	Date:	27-Apr-07	Job No.:	68010.01
	Electrical Store				
	Wind Load Computation	Designed by:	Rudy	Sheet No.:	

Average Cpe for roof (Wind direction normal to eave)

PLAN



Design as flat roof (with sharp eaves)

B = 10 m
H = 6 m
b = smaller of (B, 2H)
= 1 x 10
= 10 m

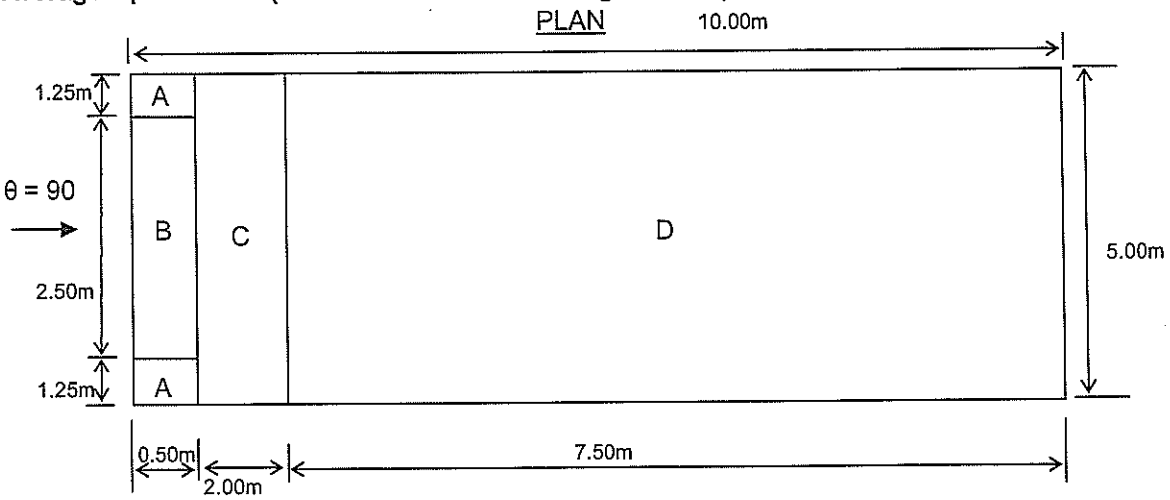
Zone	Windward Area (m^2)	Windward Cpe	Leeward Area	Leeward Cpe1	Leeward Cpe2
A	5.0	-2			
B	5.0	-1.4			
C	15.0	-0.7	25.0	-0.7	-0.7
D	0.0	-0.2	0.0	-0.2	0.2
Total	25.0		25.0		
Average		-1.10		-0.70	-0.70

Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site:	Dubai Metro Project	Date:	27-Apr-07	Job No.:	68010.01
	Electrical Store				
	Wind Load Computation	Designed by:	Rudy	Sheet No.:	

Average Cpe for roof (Wind direction normal to gable end)



Design as flat roof (with sharp eaves)

B = 5 m
H = 6 m
b = smaller of (B, 2H)
= 1 x 5
= 5 m

For maximum uplift, assume zone C coefficient => Cpe = -0.7
For maximum downward force, assume zone D coefficient => Cpe = 0.2

Wind Load Computation

D = 5.00m m
H = 6 m
D/H = 0.83

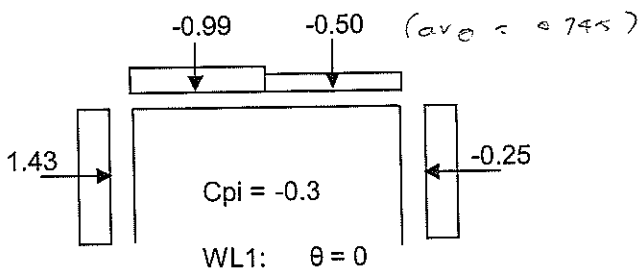
Elements	Effective Wind Speed Ve m/s	Dynamic Wind Pressure q kN/m^2	External Pressure Coefficient, Cpe				
			θ = 0 (normal to eave)			θ = 90 (normal to gable end)	
			Windward	Leeward			
Roof	45	1.24	-1.10	-0.70	-0.70	-0.7 (Zone C)	0.2 (Zone D)
Wall	45	1.24	0.85	-0.5	-0.5	-0.8 (Zone B)	-0.8 (Zone B)

Calculation/Sketch

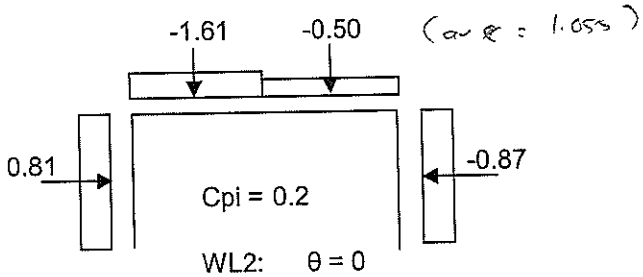
Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site:	Dubai Metro Project Electrical Store Wind Load Computation	Date:	27-Apr-07	Job No.:	68010.01
		Designed by:	Rudy	Sheet No.:	

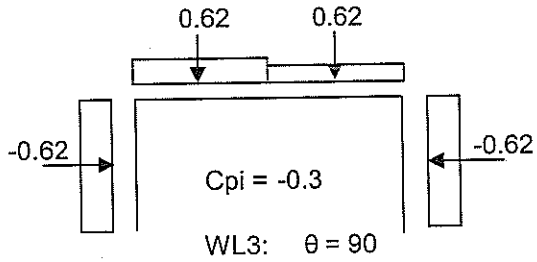
Wind Load = 1 x q x (Cpe - Cpi) kN/m (For unit width)



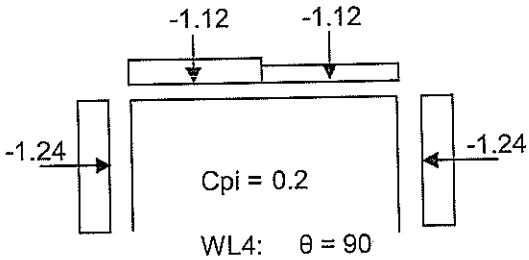
WL1: θ = 0
Internal suction
Roof Cpe for Leeward = -0.70



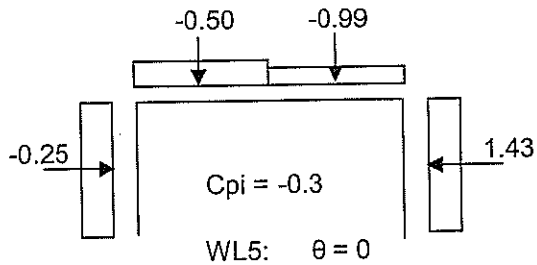
WL2: θ = 0
Internal pressure
Roof Cpe for Leeward = -0.20



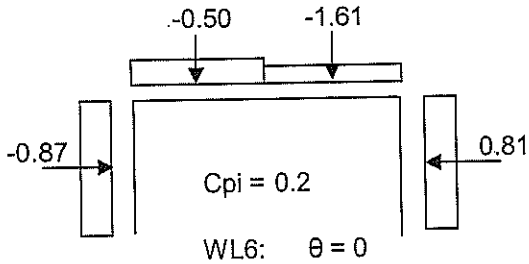
WL3: θ = 90
Internal suction
Roof Cpe = 0.20



WL4: θ = 90
Internal pressure
Roof Cpe = -0.70



WL5: θ = 0
Internal suction
Roof Cpe for Leeward = -0.70
(Reverse wind direction)



WL6: θ = 0
Internal pressure
Roof Cpe for Leeward = -0.20
(Reverse wind direction)

Site:	Dubai Metro Project	Date: 27-Apr-07	Job No.: 68010.01
	Electrical Store		
	Earthquake Loading	Designed by: Rudy	Sheet No.:

Esitmation of Earthquake Loading

Total Dead Load on the Building Column W = Given below (including part of Live Load)
Height of the Column h_n = Given below

Design Information:

1) Seismic Zone = 2A (from Design Brief)
2) Occupancy Category = 1 (Tanle- 16-K, Conservatively adopt 1)
3) Lateral Force procedure = **Static Procedure** (Section 1629.8 seismic zone 2A, structures not more than 5 stories)

Earthquake Loads

4) **Base Shear** $V_{base\text{-}S}$ = $(C_V \times I \times W) / (R \times T)$ (Section 1630.2.1)

Seismic Coefficient	C_V	= 0.32	(Table 16-R assuming soil profile type S_D)
Importance Factor	I	= 1.00	(Table 16-K)
Numeric. Coef: Strength & Ductility	R	= 4.50	(Table 16-N for OMRT steel only)
Elastic Fundamental Period of Vibration	T	= $C_t\ (h_n)^{3/4}$ Sec.	
Numerical Coefficient	C_t	= 0.0853	(Steel frame t.b.c)

5) **Limiting Values of Base shear** $V_{base\text{-}S\text{-}Max}$ = $(2.5 \times C_a \times I \times W) / R$ = 35.11
$V_{base\text{-}S\text{-}Min}$ = $0.11 \times C_a \times I \times W$ = 6.95

Design Earthquake Loads

(Section 1630.6)

E_x = $\rho \times$ Min. (E_h or $V_{base\text{-}S\text{-}Max}$)+ E_V
$E_{x\text{-}max}$ = $\Omega \times$ Min. (E_h or $V_{base\text{-}S\text{-}Max}$)
$V_{base\text{-}S}$ = E_h = Earthquake load in the element due to the base shear, V, as set out above (for non-structural components refer to section 1632)

Vert. component of EQ ground motion	E_v	= $0.5\ C_a\ I\ D$	(Table 16-K)
Seismic Coefficient	C_a	= 0.22	(Table 16-Q, for soil type S_D)
Seismic Force Amplification Factor	Ω	= 2.80	(Table 16-N)
Dead Load on the element	W = D	= Given below	

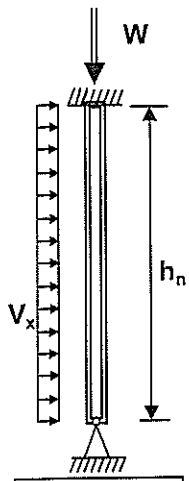
ρ = $2 - 6.1 / (r_{max} \sqrt{A_B})$ = 1.25 (conservative) $(1.0 \le \rho \le 1.5)$
r_{max} = The maximum element-storey shear ratio
A_B = Ground floor area of the structure

Distribution of Horizontal Forces:

Distribution of Horizontal Force on the Column V_x = E_x / h_n

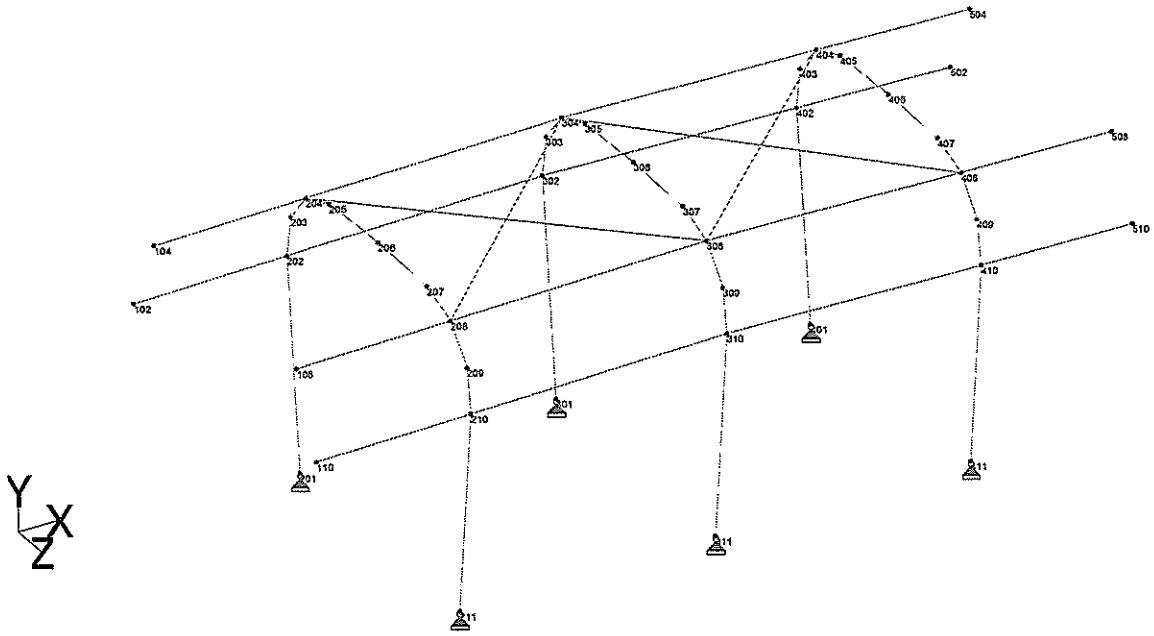
Col	Gr. Load, W, kN	Ht h_n, m	Time, T sec.	$V_{base\text{-}S}$ kN	$V_{base\text{-}S}$ kN	E_v kN	E_x kN	$E_{x\text{-}max}$ kN	V_x kN/m	$V_{x\text{-}max}$ kN/m
C1	287	6.00	0.33	62.5	35.11	31.603	75.5	98.3	12.6	**16.4**

Load per column = 6*12.6/6
= 12.6 kN



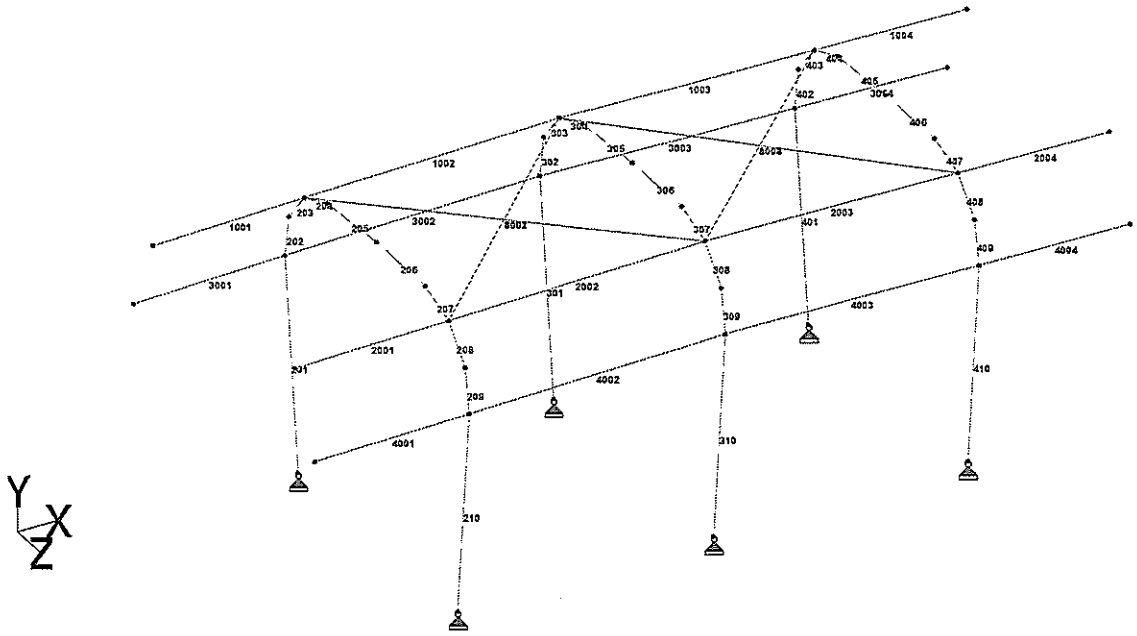
Distribution of Horozontal Forces on the Coulumn

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



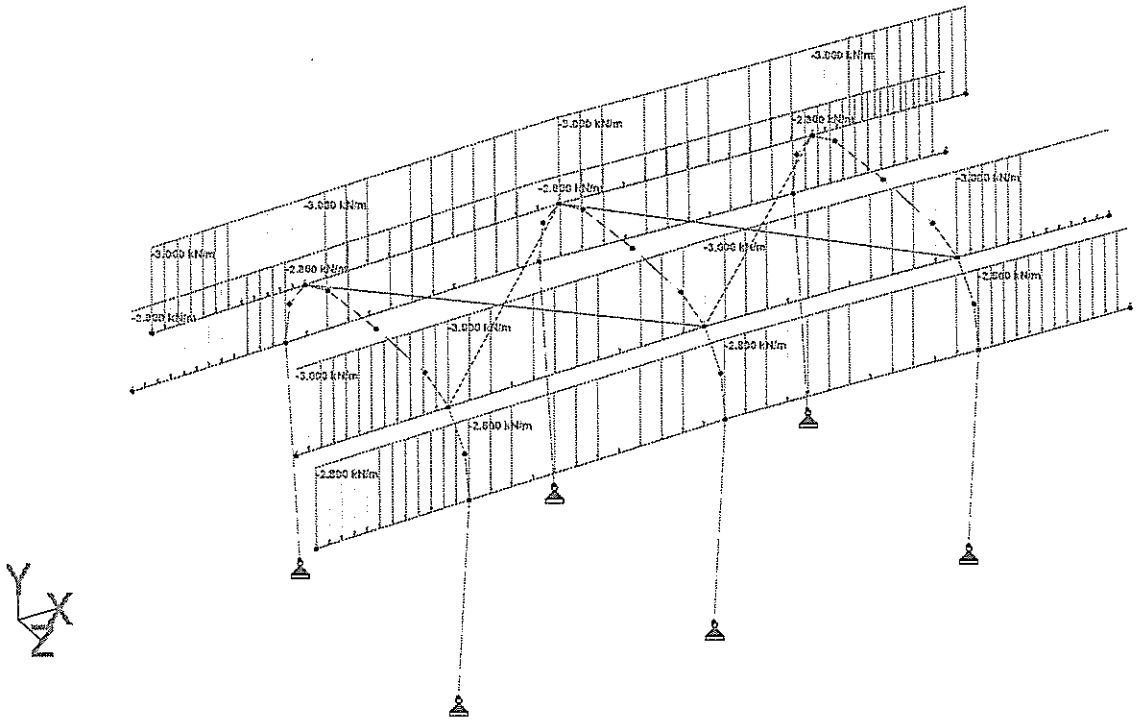
Load 1

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



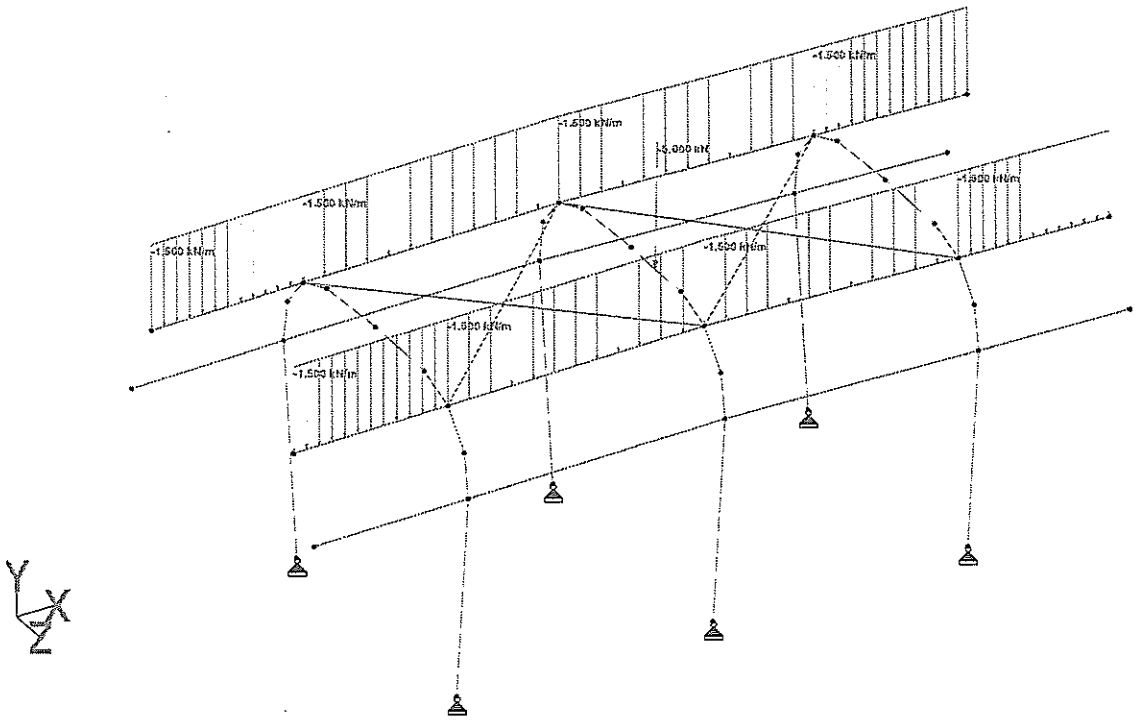
Load 1

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



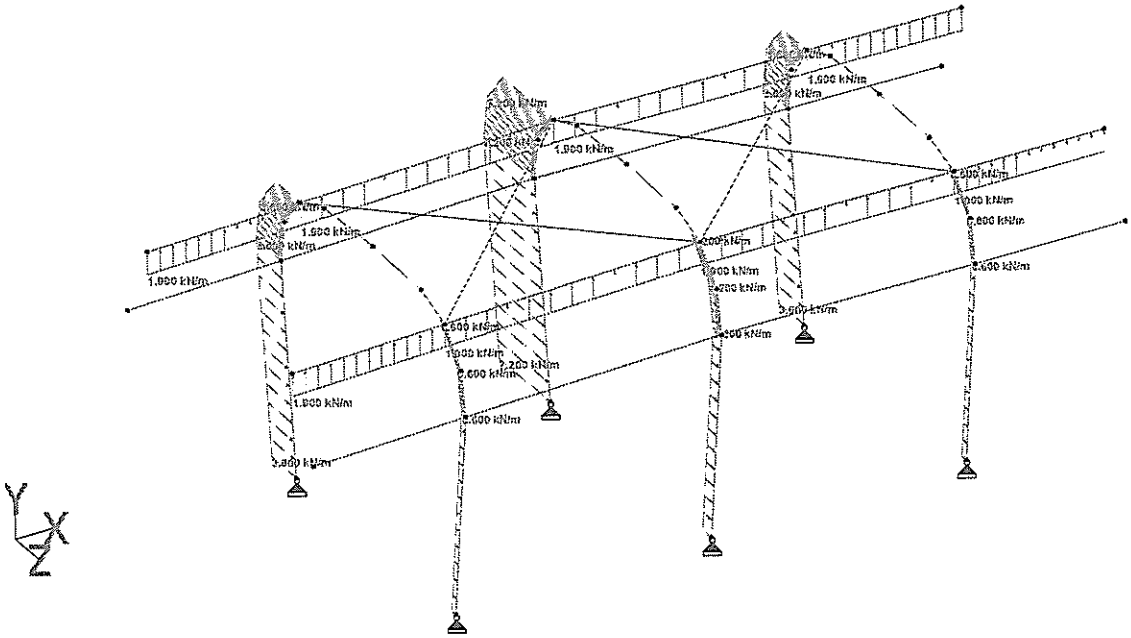
Load 2

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	

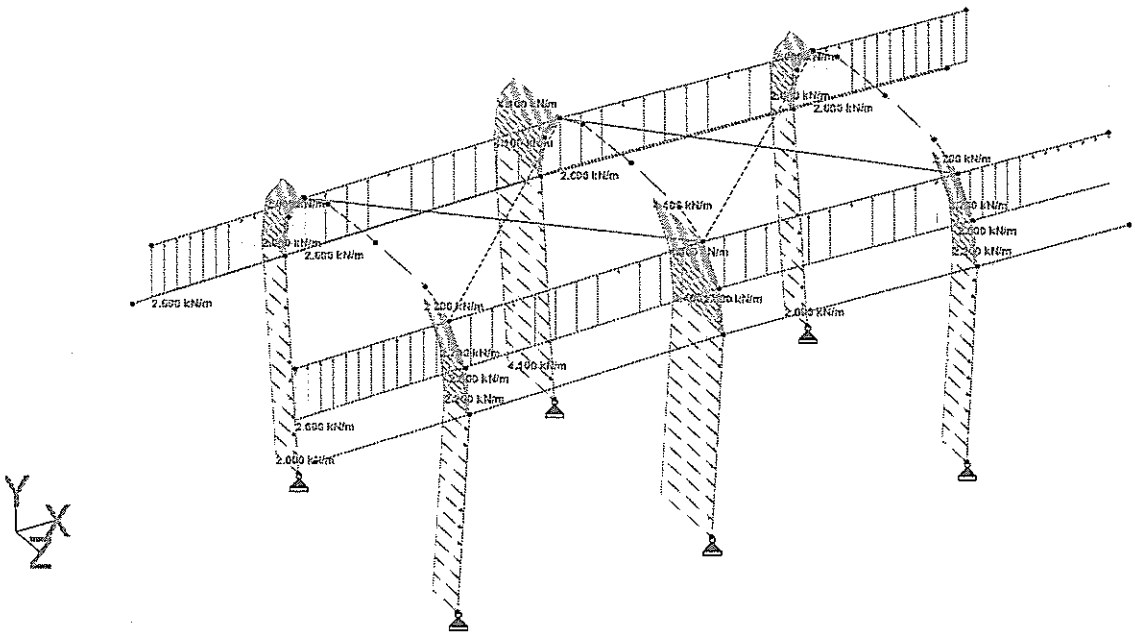


Load 3

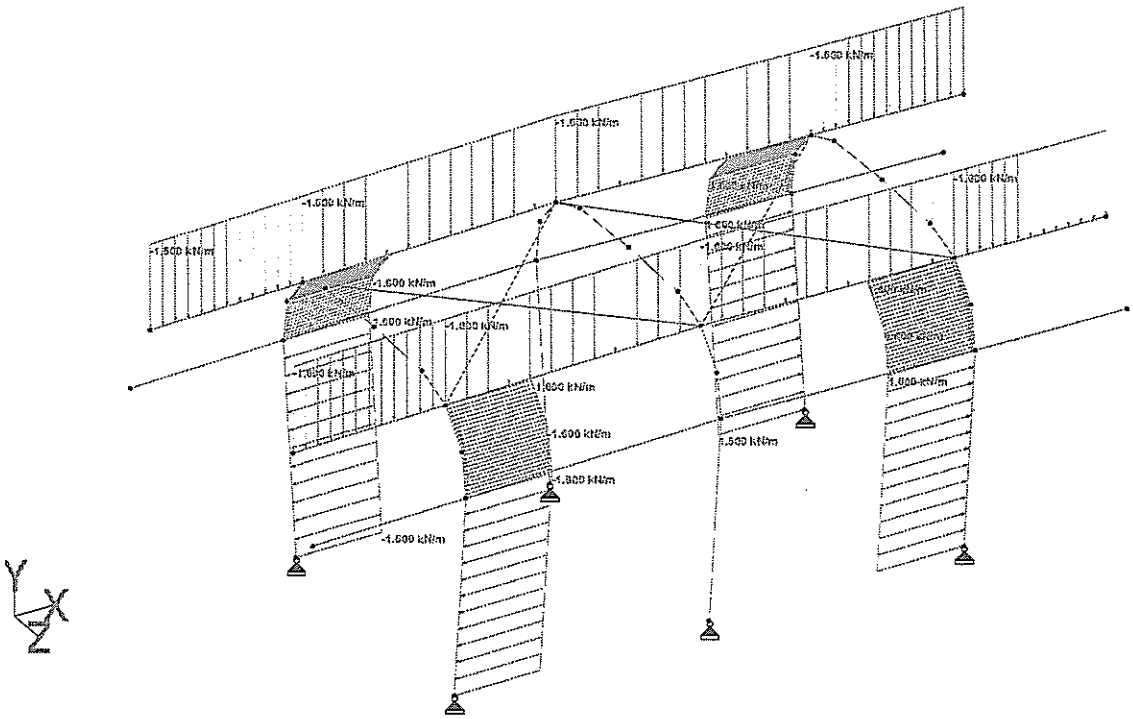
Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	


1.900 kN/m
1.900 kN/m
1.900 kN/m

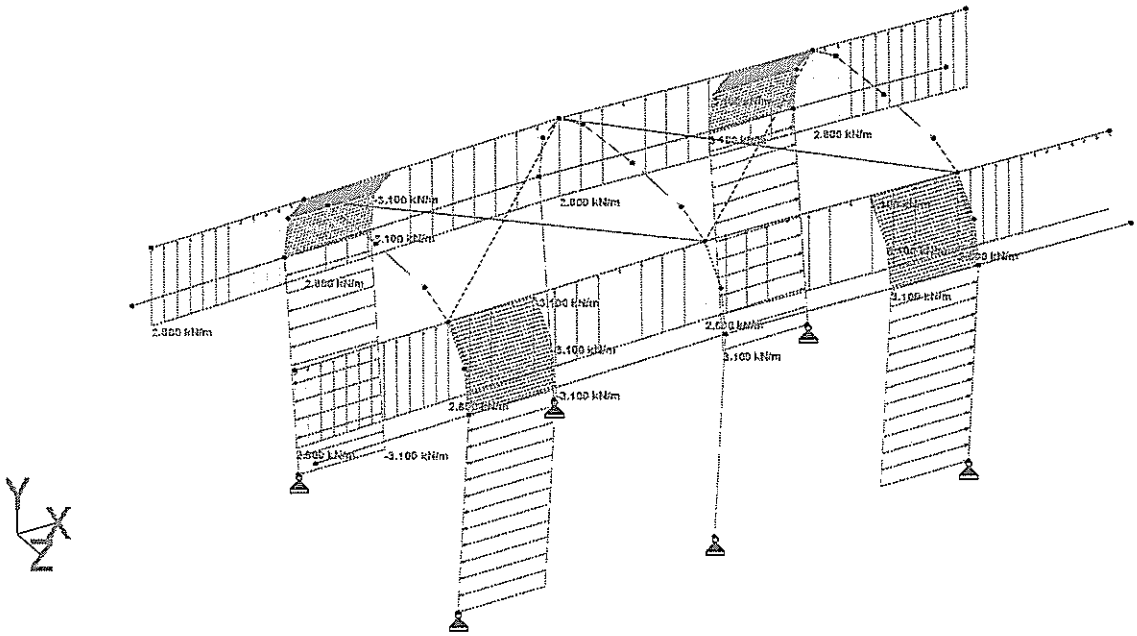
Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	


2.000 kN/m
2.000 kN/m
2.000 kN/m

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	

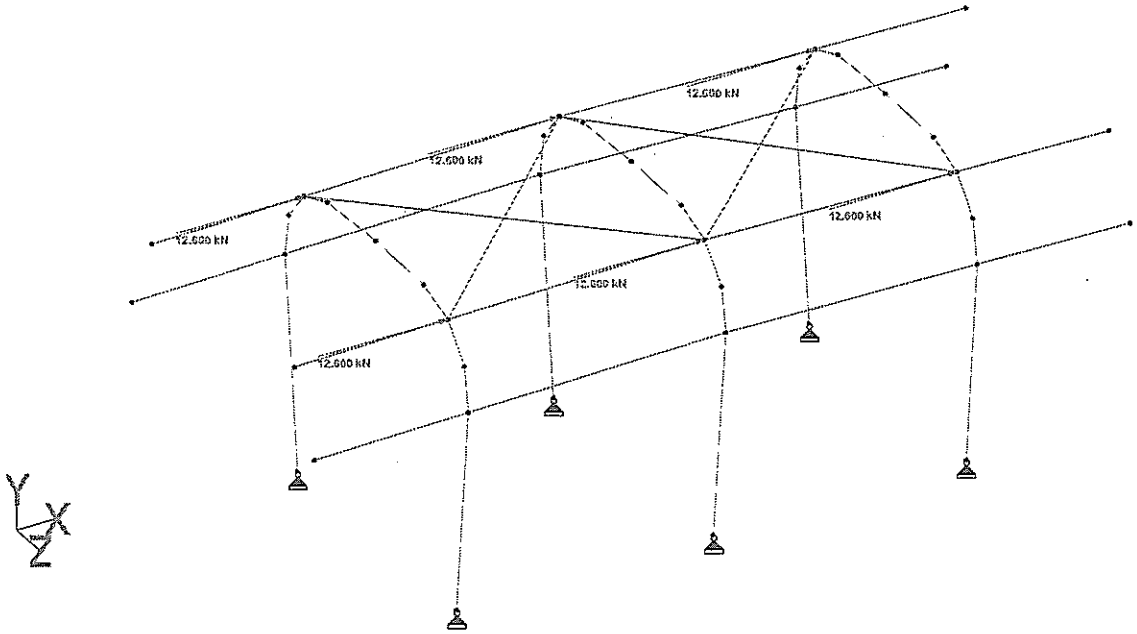

-1.600 kN/m
-1.600 kN/m
-1.600 kN/m

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



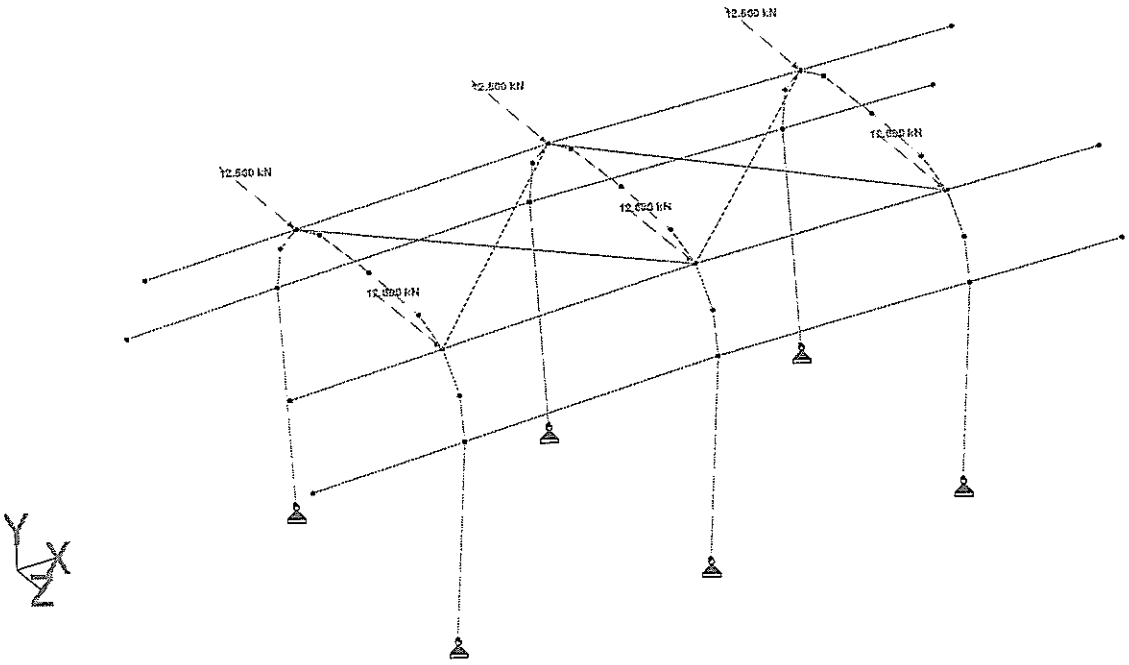
Load 14

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



Load 21

Software licensed to Meinhardt Infrastructure Pte Ltd	Job No	Sheet No 1	Rev
	Part		
Job Title	Ref		
	By	Date April 2007	Chd
Client	File Electrical Store.std	Date/Time 28-Apr-2007 15:18	



Load 22

```
**************************************************
*                                                *
*           STAAD.Pro                            *
*           Version  2006    Bld 1002.US         *
*           Proprietary Program of               *
*           Research Engineers,  Intl.           *
*           Date=    APR 28, 2007                *
*           Time=    15:20:39                    *
*                                                *
*      USER ID: Meinhardt Infrastructure Pte Ltd *
**************************************************
```

```
     1. STAAD SPACE
INPUT FILE: Electrical Store.STD
     2. START JOB INFORMATION
     3. ENGINEER DATE APRIL 2007
     4. END JOB INFORMATION
     5. INPUT WIDTH 79
     6. UNIT METER KN
     7. JOINT COORDINATES
     8. 102 -8.000 3.982 -3.102; 104 -8.000 5.464 -2.422
     9. 110 -8.000 3.982  3.102; 502  8.000 3.982 -3.102
    10. 504  8.000 5.464 -2.422; 108 -8.000 5.464  2.422
    11. 508  8.000 5.464  2.422; 510  8.000 3.982  3.102
    13. 201  -5.000  0.000 -2.685; 202  -5.000  4.054 -3.111
    14. 203  -5.000  4.889 -2.974; 204  -5.000  5.538 -2.429
    15. 205  -5.000  5.818 -1.631; 206  -5.000  5.875  0.000
    16. 207  -5.000  5.818  1.631; 208  -5.000  5.538  2.429
    17. 209  -5.000  4.889  2.974; 210  -5.000  4.054  3.111
    18. 211  -5.000  0.000  2.685
    20. 301  0.000  0.000 -2.685; 302  0.000  4.174 -3.124
    21. 303  0.000  5.011 -2.986; 304  0.000  5.662 -2.440
    22. 305  0.000  5.943 -1.639; 306  0.000  6.000  0.000
    23. 307  0.000  5.943  1.639; 308  0.000  5.662  2.440
    24. 309  0.000  5.011  2.986; 310  0.000  4.174  3.124
    25. 311  0.000  0.000  2.685
    27. 401  5.000  0.000 -2.685; 402  5.000  4.054 -3.111
    28. 403  5.000  4.889 -2.974; 404  5.000  5.538 -2.429
    29. 405  5.000  5.818 -1.631; 406  5.000  5.875  0.000
    30. 407  5.000  5.818  1.631; 408  5.000  5.538  2.429
    31. 409  5.000  4.889  2.974; 410  5.000  4.054  3.111
    32. 411  5.000  0.000  2.685
    34. MEMBER INCIDENCES
    35. 201 201 202 210; 301 301 302 310; 401 401 402 410
    36. *
    37. 1001 104 204; 1002 204 304; 1003 304 404; 1004 404 504
    38. 2001 108 208; 2002 208 308; 2003 308 408; 2004 408 508
    39. *
    40. 3001 102 202; 3002 202 302; 3003 302 402; 3004 402 502
    41. 4001 110 210; 4002 210 310; 4003 310 410; 4004 410 510
    42. *
    43. 8001 204 308; 8002 208 304; 8003 304 408; 8004 308 404
    44. DEFINE MATERIAL START
```



```
    45. ISOTROPIC STEEL
    46. E 2.05E+008
    47. POISSON 0.3
    48. DENSITY 76.8195
    49. ALPHA 1.2E-005
    50. DAMP 0.03
    51. END DEFINE MATERIAL
    53. MEMBER PROPERTY BRITISH
    54. 201 TO 210 301 TO 310 401 TO 410 -
    55. 1002 1003 2002 2003 TAPERED 0.3 0.006 0.3 0.15 0.008 0.15 0.008
    56. 1001 1004 2001 2004 TAPERED 0.3 0.006 0.3 0.15 0.008 0.15 0.008
    57. 3001 TO 3004 TAPERED 0.3 0.010 0.3 0.25 0.015 0.25 0.015
    58. 4001 TO 4004 TAPERED 0.3 0.010 0.3 0.25 0.015 0.25 0.015
    59. 8001 TO 8004 TABLE ST UA90X90X6
    60. CONSTANTS
    61. BETA 90 MEMB 3001 TO 3004 4001 TO 4004
    62. MATERIAL STEEL ALL
    63. MEMBER TENSION
    64. 8001 TO 8004
    65. SUPPORTS
    66. 201 211 301 311 401 411 PINNED
    67. LOAD 1 SELFWEIGHT
    68. SELFWEIGHT Y -1
    69. LOAD 2 SDL
    70. MEMBER LOAD
```



```
    71. 1001 TO 1004 2001 TO 2004 UNI GY -3.0
    72. 3001 TO 3004 4001 TO 4004 UNI GY -2.8
    73. LOAD 3 LL
    74. MEMBER LOAD
    75. 1001 TO 1004 2001 TO 2004 UNI GY -1.5
    76. 306 CON Y -5
    77. LOAD 11 WL1 (INTERNAL SUCTION, WIND ANGLE 0)
    78. MEMBER LOAD
    79. 1001 TO 1004 2001 TO 2004 UNI GY 1.9
    80. 201 TO 203 401 TO 403 UNI GZ 3.6
    81. 301 TO 303 UNI GZ 7.2
    82. 208 TO 210 408 TO 410 UNI GZ 0.6
    83. 308 TO 310 UNI GZ 1.2
    85. LOAD 12 WL2 (INTERNAL PRESSURE, WIND ANGLE 0)
    86. MEMBER LOAD
    87. 1001 TO 1004 2001 TO 2004 UNI GY 2.6
    88. 201 TO 203 401 TO 403 UNI GZ 2.0
    89. 301 TO 303 UNI GZ 4.1
    90. 208 TO 210 408 TO 410 UNI GZ 2.2
    91. 308 TO 310 UNI GZ 4.4
    93. LOAD 13 WL3 (INTERNAL SUCTION, WIND ANGLE 90)
    94. MEMBER LOAD
    95. 1001 TO 1004 2001 TO 2004 UNI GY -1.6
    96. 201 TO 203 208 TO 210 UNI GX -1.6
    97. 401 TO 403 408 TO 410 UNI GX 1.6
    99. LOAD 14 WL4 (INTERNAL PRESSURE, WIND ANGLE 90)
   100. MEMBER LOAD
   101. 1001 TO 1004 2001 TO 2004 UNI GY 2.8
   102. 201 TO 203 208 TO 210 UNI GX -3.1
   103. 401 TO 403 408 TO 410 UNI GX 3.1
   106. LOAD 21 EQ1 (EARTHQUAKE LOAD)
```



```
   107. JOINT LOAD
   108. 204 208 304 308 404 408 FX 12.6
   109. LOAD 22 EQ1 (EARTHQUAKE LOAD)
   110. JOINT LOAD
   111. 204 208 304 308 404 408 FZ 12.6
   113. LOAD COMB 1001 1.4DL + 1.6LL
   114. 1 1.4 2 1.4 3 1.6
   116. LOAD COMB 1011 1.2DL + 1.2LL + 1.2WL1
   117. 1 1.2 2 1.2 3 1.2 11 1.2
   118. LOAD COMB 1111 1.4DL + 1.4WL1
   119. 1 1.4 2 1.4 11 1.4
   120. LOAD COMB 1211 1.0DL + 1.4WL1
   121. 1 1.0 2 1.0 11 1.4
   122. LOAD COMB 1012 1.2DL + 1.2LL + 1.2WL2
   123. 1 1.2 2 1.2 3 1.2 12 1.2
   124. LOAD COMB 1112 1.4DL + 1.4WL2
   125. 1 1.4 2 1.4 12 1.4
   126. LOAD COMB 1212 1.0DL + 1.4WL2
   127. 1 1.0 2 1.0 12 1.4
   128. LOAD COMB 1013 1.2DL + 1.2LL + 1.2WL3
   129. 1 1.2 2 1.2 3 1.2 13 1.2
   130. LOAD COMB 1113 1.4DL + 1.4WL3
   131. 1 1.4 2 1.4 13 1.4
   132. LOAD COMB 1213 1.0DL + 1.4WL3
   133. 1 1.0 2 1.0 13 1.4
   134. LOAD COMB 1014 1.2DL + 1.2LL + 1.2WL4
   135. 1 1.2 2 1.2 3 1.2 14 1.2
   136. LOAD COMB 1114 1.4DL + 1.4WL4
   137. 1 1.4 2 1.4 14 1.4
   138. LOAD COMB 1214 1.0DL + 1.4WL4
   139. 1 1.0 2 1.0 14 1.4
   141. LOAD COMB 1021 1.2DL + 0.5LL + 1.0EQ1
   142. 1 1.2 2 1.2 3 0.5 21 1.0
   143. LOAD COMB 1022 1.2DL + 0.5LL + 1.0EQ2
   144. 1 1.2 2 1.2 3 0.5 22 1.0
   145. LOAD COMB 1121 1.2DL + 0.5LL - 1.0EQ1
   146. 1 1.2 2 1.2 3 0.5 21 -1.0
   147. LOAD COMB 1122 1.2DL + 0.5LL - 1.0EQ2
   148. 1 1.2 2 1.2 3 0.5 22 -1.0
   149. LOAD COMB 1221 0.9DL + 1.0EQ1
   150. 1 0.9 2 0.9 21 1.0
   151. LOAD COMB 1222 0.9DL + 1.0EQ2
   152. 1 0.9 2 0.9 22 1.0
   153. LOAD COMB 1321 0.9DL - 1.0EQ1
   154. 1 0.9 2 0.9 21 -1.0
   155. LOAD COMB 1322 0.9DL - 1.0EQ2
   156. 1 0.9 2 0.9 22 -1.0
   157. *SLS
   158. LOAD COMB 2001 1.0DL + 1.0LL
   159. 1 1.0 2 1.0 3 1.0
   160. LOAD COMB 2002 1.0DL + 0.5LL
   161. 1 1.0 2 1.0 3 0.5
   162. LOAD COMB 2011 DL + LL + WL1
```

```
163. 1 1.0 2 1.0 3 1.0 11 1.0
164. LOAD COMB 2012 DL + LL + WL2
165. 1 1.0 2 1.0 3 1.0 12 1.0
STAAD SPACE                                        -- PAGE NO.    4

166. LOAD COMB 2013 DL + LL + WL3
167. 1 1.0 2 1.0 3 1.0 13 1.0
168. LOAD COMB 2014 DL + LL + WL4
169. 1 1.0 2 1.0 3 1.0 14 1.0
171. PERFORM ANALYSIS


          P R O B L E M   S T A T I S T I C S
          -----------------------------------

   NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS =    41/    50/     6
   ORIGINAL/FINAL BAND-WIDTH=    32/     11/     72 DOF
   TOTAL PRIMARY LOAD CASES =     9, TOTAL DEGREES OF FREEDOM =    228
   SIZE OF STIFFNESS MATRIX =       17 DOUBLE  KILO-WORDS
   REQRD/AVAIL. DISK SPACE  =     12.3/ 416818.9 MB


 **NOTE-Tension/Compression converged after  1 iterations, Case=    1


 **NOTE-Tension/Compression converged after  1 iterations, Case=    2


 **NOTE-Tension/Compression converged after  1 iterations, Case=    3


 **START ITERATION NO.           2
 **START ITERATION NO.           3

 **NOTE-Tension/Compression converged after  3 iterations, Case=   11


 **START ITERATION NO.           2
 **START ITERATION NO.           3

 **NOTE-Tension/Compression converged after  3 iterations, Case=   12


 **NOTE-Tension/Compression converged after  1 iterations, Case=   13


 **START ITERATION NO.           2

 **NOTE-Tension/Compression converged after  2 iterations, Case=   14


 **START ITERATION NO.           2
STAAD SPACE                                        -- PAGE NO.    5

 **NOTE-Tension/Compression converged after  2 iterations, Case=   21


 **START ITERATION NO.           2

 **NOTE-Tension/Compression converged after  2 iterations, Case=   22


 172. LOAD LIST 1001 1011 TO 1014 1021 1022 1111 TO 1114 1121 1122 -
 173. 1211 TO 1214 1221 1222 1321 1322
 174. PRINT SUPPORT REACTION ALL
SUPPORT  REACTION ALL
STAAD SPACE                                        -- PAGE NO.    6
```


SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
201	1001	-0.23	77.43	-2.94	0.00	0.00	0.00
	1011	-0.20	28.34	-25.27	0.00	0.00	0.00
	1111	-0.24	20.04	-29.44	0.00	0.00	0.00
	1211	-0.17	2.17	-28.61	0.00	0.00	0.00
	1012	-0.21	23.25	-20.16	0.00	0.00	0.00
	1112	-0.25	14.10	-23.47	0.00	0.00	0.00
	1212	-0.18	-3.77	-22.64	0.00	0.00	0.00
	1013	2.81	75.56	-2.52	0.00	0.00	0.00
	1113	3.27	75.13	-2.90	0.00	0.00	0.00
	1213	3.34	57.26	-2.07	0.00	0.00	0.00
	1014	5.60	42.45	-2.23	0.00	0.00	0.00
	1114	6.53	36.51	-2.56	0.00	0.00	0.00
	1214	6.60	18.64	-1.73	0.00	0.00	0.00
	1021	-12.79	37.17	-0.75	0.00	0.00	0.00
	1022	-0.21	31.52	-15.29	0.00	0.00	0.00
	1121	12.38	79.36	-4.24	0.00	0.00	0.00
	1122	-0.20	85.01	10.31	0.00	0.00	0.00
	1221	-12.74	19.12	-0.11	0.00	0.00	0.00
	1222	-0.16	13.46	-14.66	0.00	0.00	0.00
	1321	12.43	61.30	-3.61	0.00	0.00	0.00
	1322	-0.15	66.96	10.94	0.00	0.00	0.00
211	1001	-0.23	77.24	3.03	0.00	0.00	0.00
	1011	-0.21	72.68	-10.45	0.00	0.00	0.00
	1111	-0.25	71.94	-12.31	0.00	0.00	0.00
	1211	-0.18	54.07	-13.13	0.00	0.00	0.00
	1012	-0.22	68.01	-15.67	0.00	0.00	0.00
	1112	-0.26	66.49	-18.40	0.00	0.00	0.00
	1212	-0.19	48.62	-19.22	0.00	0.00	0.00
	1013	2.81	75.41	2.58	0.00	0.00	0.00
	1113	3.27	75.13	2.90	0.00	0.00	0.00
	1213	3.34	57.26	2.07	0.00	0.00	0.00
	1014	5.60	42.31	2.29	0.00	0.00	0.00
	1114	6.53	36.51	2.56	0.00	0.00	0.00
	1214	6.60	18.64	1.73	0.00	0.00	0.00
	1021	-12.79	37.11	0.77	0.00	0.00	0.00
	1022	-0.20	84.94	-10.23	0.00	0.00	0.00
	1121	12.38	79.30	4.27	0.00	0.00	0.00
	1122	-0.21	31.47	15.27	0.00	0.00	0.00
	1221	-12.74	19.12	0.11	0.00	0.00	0.00
	1222	-0.15	66.95	-10.89	0.00	0.00	0.00
	1321	12.43	61.30	3.61	0.00	0.00	0.00
	1322	-0.16	13.48	14.61	0.00	0.00	0.00
301	1001	0.00	53.79	-1.67	0.00	0.00	0.00
	1011	0.00	18.05	-33.76	0.00	0.00	0.00
	1111	0.00	10.79	-39.51	0.00	0.00	0.00
	1211	0.00	-1.22	-38.99	0.00	0.00	0.00
	1012	0.00	14.41	-24.46	0.00	0.00	0.00
	1112	0.00	6.54	-28.66	0.00	0.00	0.00

STAAD SPACE -- PAGE NO. 7

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	1212	0.00	-5.48	-28.14	0.00	0.00	0.00
	1013	0.00	54.01	-1.71	0.00	0.00	0.00
	1113	0.00	52.75	-2.12	0.00	0.00	0.00
	1213	0.00	40.73	-1.60	0.00	0.00	0.00
	1014	0.00	35.71	-1.98	0.00	0.00	0.00
	1114	0.00	31.40	-2.43	0.00	0.00	0.00
	1214	0.00	19.38	-1.91	0.00	0.00	0.00
	1021	-12.64	39.72	-1.53	0.00	0.00	0.00
	1022	0.00	14.66	-13.80	0.00	0.00	0.00
	1121	12.64	39.71	-1.49	0.00	0.00	0.00
	1122	0.00	64.76	10.78	0.00	0.00	0.00
	1221	-12.64	27.04	-1.18	0.00	0.00	0.00
	1222	0.00	1.98	-13.45	0.00	0.00	0.00
	1321	12.64	27.03	-1.14	0.00	0.00	0.00
	1322	0.00	52.08	11.13	0.00	0.00	0.00
311	1001	0.00	55.99	1.78	0.00	0.00	0.00
	1011	0.00	57.09	-12.18	0.00	0.00	0.00
	1111	0.00	54.41	-14.18	0.00	0.00	0.00
	1211	0.00	42.39	-14.70	0.00	0.00	0.00
	1012	0.00	53.36	-21.97	0.00	0.00	0.00
	1112	0.00	50.06	-25.61	0.00	0.00	0.00

1212	0.00	38.04	-26.13	0.00	0.00	0.00
1013	0.00	55.66	1.79	0.00	0.00	0.00
1113	0.00	52.75	2.12	0.00	0.00	0.00
1213	0.00	40.73	1.60	0.00	0.00	0.00
1014	0.00	37.36	2.06	0.00	0.00	0.00
1114	0.00	31.40	2.43	0.00	0.00	0.00
1214	0.00	19.38	1.91	0.00	0.00	0.00
1021	-12.64	40.41	1.56	0.00	0.00	0.00
1022	0.00	65.48	-10.67	0.00	0.00	0.00
1121	12.64	40.39	1.52	0.00	0.00	0.00
1122	0.00	15.32	13.76	0.00	0.00	0.00
1221	-12.64	27.04	1.18	0.00	0.00	0.00
1222	0.00	52.11	-11.05	0.00	0.00	0.00
1321	12.64	27.03	1.14	0.00	0.00	0.00
1322	0.00	1.96	13.38	0.00	0.00	0.00
401 1001	0.23	77.43	-2.94	0.00	0.00	0.00
1011	0.20	28.34	-25.27	0.00	0.00	0.00
1111	0.24	20.04	-29.44	0.00	0.00	0.00
1211	0.17	2.17	-28.61	0.00	0.00	0.00
1012	0.21	23.25	-20.16	0.00	0.00	0.00
1112	0.25	14.10	-23.47	0.00	0.00	0.00
1212	0.18	-3.77	-22.64	0.00	0.00	0.00
1013	-2.81	75.56	-2.52	0.00	0.00	0.00
1113	-3.27	75.13	-2.90	0.00	0.00	0.00
1213	-3.34	57.26	-2.07	0.00	0.00	0.00
1014	-5.60	42.45	-2.23	0.00	0.00	0.00
1114	-6.53	36.51	-2.56	0.00	0.00	0.00

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = SPACE

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
	1214	-6.60	18.64	-1.73	0.00	0.00	0.00
	1021	-12.38	79.35	-4.27	0.00	0.00	0.00
	1022	0.21	31.52	-15.29	0.00	0.00	0.00
	1121	12.79	37.18	-0.72	0.00	0.00	0.00
	1122	0.20	85.01	10.31	0.00	0.00	0.00
	1221	-12.43	61.30	-3.64	0.00	0.00	0.00
	1222	0.16	13.46	-14.66	0.00	0.00	0.00
	1321	12.74	19.12	-0.08	0.00	0.00	0.00
	1322	0.15	66.96	10.94	0.00	0.00	0.00
411	1001	0.23	77.24	3.03	0.00	0.00	0.00
	1011	0.21	72.68	-10.45	0.00	0.00	0.00
	1111	0.25	71.94	-12.31	0.00	0.00	0.00
	1211	0.18	54.07	-13.13	0.00	0.00	0.00
	1012	0.22	68.01	-15.67	0.00	0.00	0.00
	1112	0.26	66.49	-18.40	0.00	0.00	0.00
	1212	0.19	48.62	-19.22	0.00	0.00	0.00
	1013	-2.81	75.41	2.58	0.00	0.00	0.00
	1113	-3.27	75.13	2.90	0.00	0.00	0.00
	1213	-3.34	57.26	2.07	0.00	0.00	0.00
	1014	-5.60	42.31	2.29	0.00	0.00	0.00
	1114	-6.53	36.51	2.56	0.00	0.00	0.00
	1214	-6.60	18.64	1.73	0.00	0.00	0.00
	1021	-12.38	79.29	4.30	0.00	0.00	0.00
	1022	0.20	84.94	-10.23	0.00	0.00	0.00
	1121	12.79	37.12	0.74	0.00	0.00	0.00
	1122	0.21	31.47	15.27	0.00	0.00	0.00
	1221	-12.43	61.30	3.64	0.00	0.00	0.00
	1222	0.15	66.95	-10.89	0.00	0.00	0.00
	1321	12.74	19.12	0.08	0.00	0.00	0.00
	1322	0.16	13.48	14.61	0.00	0.00	0.00

********** END OF LATEST ANALYSIS RESULT **********

175. PRINT FORCE ENVELOPE NSECTION 5 ALL

FORCE ENVELOPE NSECTION 5

MEMBER FORCE ENVELOPE

ALL UNITS ARE KN METE

MEMB	DISTANCE	FY	LD	MZ	LD	FZ	LD	MY	LD
201	0.00	MAX		19.13	1122	0.00	1022	12.43	1321
		MIN		-28.23	1211	0.00	1211	-12.79	1021
	0.82	MAX		19.10	1122	21.36	1211	12.43	1321
		MIN		-24.17	1211	-15.59	1122	-12.79	1021
	1.63	MAX		19.07	1122	39.40	1211	12.43	1321
		MIN		-20.11	1211	-31.14	1122	-12.79	1021
	2.45	MAX		19.04	1122	54.14	1211	12.43	1321
		MIN		-16.18	1212	-46.68	1122	-12.79	1021
	3.26	MAX		19.00	1122	65.57	1211	12.43	1321
		MIN		-13.94	1212	-62.18	1122	-12.79	1021
	4.08	MAX		18.97	1122	73.69	1211	12.43	1321
		MIN		-13.29	1222	-77.66	1122	-12.79	1021

MAX/MIN FORCE VALUES FOR MEMB 201, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	19.13	0.00	1122	73.69	4.08	1211			
	12.43	0.00	1321	50.66	4.08	1321	83.47 C	0.00	1122
MIN.	-28.23	0.00	1211	-77.66	4.08	1122			
	-12.79	4.08	1021	-52.12	4.08	1021	3.85 T	4.08	1212

202	0.00	MAX		15.87	1022	77.64	1122	11.12	1021	5.89	1321
		MIN		-4.39	1322	-73.69	1211	-7.30	1321	-9.19	1021
	0.17	MAX		15.86	1022	77.99	1122	11.12	1021	4.66	1321
		MIN		-4.40	1322	-74.05	1211	-7.30	1321	-7.31	1021
	0.34	MAX		15.85	1022	78.34	1122	11.12	1021	3.42	1321
		MIN		-4.40	1322	-74.26	1211	-7.30	1321	-5.43	1021
	0.51	MAX		15.84	1022	78.70	1122	11.12	1021	2.19	1321
		MIN		-4.41	1322	-74.33	1211	-7.30	1321	-3.55	1021
	0.68	MAX		15.83	1022	79.06	1122	11.12	1021	0.95	1321
		MIN		-4.42	1322	-74.26	1211	-7.30	1321	-1.66	1021
	0.85	MAX		15.82	1022	79.42	1122	11.12	1021	0.22	1221
		MIN		-4.43	1322	-74.66	1212	-7.30	1321	-0.29	1121

MAX/MIN FORCE VALUES FOR MEMB 202, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	15.87	0.00	1022	79.42	0.85	1122			
	11.12	0.00	1021	5.89	0.00	1321	58.64 C	0.00	1122
MIN.	-4.43	0.85	1322	-74.66	0.85	1212			
	-7.30	0.85	1321	-9.19	0.00	1021	28.15 T	0.00	1212

203	0.00	MAX		32.81	1013	79.42	1122	11.12	1021	0.20	1221
		MIN		-12.19	1211	-74.66	1212	-7.30	1321	-0.27	1121
	0.17	MAX		32.77	1013	74.68	1122	11.12	1021	2.09	1021
		MIN		-12.88	1211	-72.74	1212	-7.30	1321	-1.50	1321
	0.34	MAX		32.73	1013	69.96	1122	11.12	1021	3.97	1021
		MIN		-13.57	1211	-70.75	1212	-7.30	1321	-2.74	1321
	0.51	MAX		32.68	1013	65.98	1322	11.12	1021	5.86	1021
		MIN		-14.26	1211	-69.49	1022	-7.30	1321	-3.98	1321
	0.68	MAX		32.64	1013	62.54	1322	11.12	1021	7.74	1021
		MIN		-14.94	1211	-71.87	1022	-7.30	1321	-5.21	1321
	0.85	MAX		32.60	1013	59.11	1322	11.12	1021	9.63	1021
		MIN		-15.63	1211	-74.24	1022	-7.30	1321	-6.45	1321

MAX/MIN FORCE VALUES FOR MEMB 203, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	32.81	0.00	1013	79.42	0.00	1122			
	11.12	0.00	1021	9.63	0.85	1021	51.23 C	0.00	1122
MIN.	-15.63	0.85	1211	-74.66	0.00	1212			
	-7.30	0.85	1321	-6.45	0.85	1321	25.98 T	0.00	1212

204	0.00	MAX		24.75	1322	59.08	1322	0.00	1211	0.26	1021
		MIN		-28.67	1111	-74.27	1022	0.00	1022	-0.13	1321
	0.17	MAX		24.71	1322	54.90	1322	0.00	1211	0.26	1021
		MIN		-28.75	1111	-69.71	1022	0.00	1022	-0.13	1321

	0.34	MAX	24.66	1322	50.72	1322	0.00	1211	0.26	1021
		MIN	-28.82	1111	-65.14	1022	0.00	1022	-0.13	1321
	0.51	MAX	24.62	1322	46.55	1322	0.00	1211	0.26	1021
		MIN	-28.89	1111	-60.55	1022	0.00	1022	-0.13	1321
	0.68	MAX	24.57	1322	42.39	1322	0.00	1211	0.26	1021
		MIN	-28.96	1111	-55.96	1022	0.00	1022	-0.13	1321
	0.85	MAX	24.53	1322	38.24	1322	0.00	1211	0.26	1021
		MIN	-29.03	1111	-51.36	1022	0.00	1022	-0.13	1321

♀ STAAD SPACE -- PAGE NO. 11

MAX/MIN FORCE VALUES FOR MEMB 204, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	24.75	0.00	1322	59.08	0.00	1322			
	0.00	0.00	1111	0.26	0.00	1021	15.05 C	0.00	1122
MIN.	-29.03	0.85	1111	-74.27	0.00	1022			
	0.00	0.85	1022	-0.13	0.85	1321	3.82 T	0.85	1222

205	0.00	MAX	27.14	1122	38.24	1322	0.00	1211	0.27	1021
		MIN	-26.42	1222	-51.36	1022	0.00	1022	-0.14	1321
	0.33	MAX	27.02	1122	29.43	1322	0.00	1211	0.27	1021
		MIN	-26.52	1222	-42.75	1022	0.00	1022	-0.14	1321
	0.65	MAX	26.90	1122	20.64	1322	0.00	1211	0.27	1021
		MIN	-26.61	1222	-34.09	1022	0.00	1022	-0.14	1321
	0.98	MAX	26.77	1122	11.89	1322	0.00	1211	0.27	1021
		MIN	-26.70	1222	-25.40	1022	0.00	1022	-0.14	1321
	1.31	MAX	26.68	1322	3.17	1322	0.00	1211	0.27	1021
		MIN	-26.82	1022	-16.66	1022	0.00	1022	-0.14	1321
	1.63	MAX	26.59	1322	3.97	1211	0.00	1211	0.27	1021
		MIN	-26.95	1022	-11.85	1013	0.00	1022	-0.14	1321

MAX/MIN FORCE VALUES FOR MEMB 205, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	27.14	0.00	1122	38.24	0.00	1322			
	0.00	0.00	1111	0.27	0.00	1021	17.02 C	0.00	1011
MIN.	-26.95	1.63	1022	-51.36	0.00	1022			
	0.00	1.63	1022	-0.14	1.63	1321	1.63 C	1.63	1321

206	0.00	MAX	26.96	1122	3.97	1211	0.00	1211	0.27	1021
		MIN	-26.53	1222	-11.85	1013	0.00	1022	-0.14	1321
	0.33	MAX	26.84	1122	12.17	1211	0.00	1211	0.27	1021
		MIN	-26.62	1222	-17.03	1122	0.00	1022	-0.14	1321
	0.65	MAX	26.72	1122	20.40	1211	0.00	1211	0.27	1021
		MIN	-26.71	1222	-25.77	1122	0.00	1022	-0.14	1321
	0.98	MAX	26.59	1122	28.66	1211	0.00	1211	0.27	1021
		MIN	-26.80	1222	-34.47	1122	0.00	1022	-0.14	1321
	1.31	MAX	26.47	1122	36.96	1211	0.00	1211	0.27	1021
		MIN	-26.90	1222	-43.13	1122	0.00	1022	-0.14	1321
	1.63	MAX	26.36	1322	45.29	1211	0.00	1211	0.27	1021
		MIN	-27.00	1022	-51.74	1122	0.00	1022	-0.14	1321

♀ STAAD SPACE -- PAGE NO. 12

MAX/MIN FORCE VALUES FOR MEMB 206, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.96	0.00	1122	45.29	1.63	1211			
	0.00	0.00	1111	0.27	0.00	1021	18.55 C	1.63	1011
MIN.	-27.00	1.63	1022	-51.74	1.63	1122			
	0.00	1.63	1022	-0.14	1.63	1321	1.63 C	0.00	1321

207	0.00	MAX	26.73	1122	45.29	1211	0.00	1211	0.26	1021
		MIN	-23.94	1222	-51.74	1122	0.00	1022	-0.13	1321
	0.17	MAX	26.67	1122	48.63	1211	0.00	1211	0.26	1021
		MIN	-23.99	1222	-56.26	1122	0.00	1022	-0.13	1321
	0.34	MAX	26.61	1122	51.98	1211	0.00	1211	0.26	1021
		MIN	-24.03	1222	-60.77	1122	0.00	1022	-0.13	1321
	0.51	MAX	26.55	1122	55.33	1211	0.00	1211	0.26	1021
		MIN	-24.08	1222	-65.26	1122	0.00	1022	-0.13	1321

	0.68	MAX	26.49	1122	58.69	1211	0.00	1211	0.26	1021
		MIN	-24.12	1222	-69.75	1122	0.00	1022	-0.13	1321
	0.85	MAX	26.43	1122	62.07	1211	0.00	1211	0.26	1021
		MIN	-24.17	1222	-74.22	1122	0.00	1022	-0.13	1321

MAX/MIN FORCE VALUES FOR MEMB 207, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.73	0.00	1122	62.07	0.85	1211			
	0.00	0.00	1111	0.26	0.00	1021	24.67 C	0.85	1111
MIN.	-24.17	0.85	1222	-74.22	0.85	1122			
	0.00	0.85	1022	-0.13	0.85	1321	5.49 T	0.00	1322

208	0.00	MAX	0.35	1214	62.08	1211	7.30	1321	9.62	1021
		MIN	-32.63	1013	-74.19	1122	-11.11	1021	-6.45	1321
	0.17	MAX	0.31	1214	64.27	1211	7.30	1321	7.73	1021
		MIN	-32.68	1013	-71.82	1122	-11.11	1021	-5.21	1321
	0.34	MAX	0.28	1214	66.45	1211	7.30	1321	5.85	1021
		MIN	-32.72	1013	-69.45	1122	-11.11	1021	-3.98	1321
	0.51	MAX	0.25	1214	69.54	1022	7.30	1321	3.97	1021
		MIN	-32.76	1013	-67.40	1322	-11.11	1021	-2.74	1321
	0.68	MAX	0.21	1214	74.27	1022	7.30	1321	2.08	1021
		MIN	-32.80	1013	-66.29	1322	-11.11	1021	-1.50	1321
	0.85	MAX	0.18	1214	79.01	1022	7.30	1321	0.20	1221
		MIN	-32.84	1013	-65.17	1322	-11.11	1021	-0.27	1121

♀ STAAD SPACE -- PAGE NO. 13

MAX/MIN FORCE VALUES FOR MEMB 208, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.35	0.00	1214	79.01	0.85	1022			
	7.30	0.00	1321	9.62	0.00	1021	51.11 C	0.85	1022
MIN.	-32.84	0.85	1013	-74.19	0.00	1122			
	-11.11	0.85	1021	-6.45	0.00	1321	15.47 T	0.00	1322

209	0.00	MAX	4.41	1222	79.01	1022	7.30	1321	0.22	1221
		MIN	-15.86	1122	-65.17	1322	-11.11	1021	-0.29	1121
	0.17	MAX	4.40	1222	78.66	1022	7.30	1321	0.95	1321
		MIN	-15.87	1122	-62.88	1322	-11.11	1021	-1.66	1021
	0.34	MAX	4.52	1211	78.32	1022	7.30	1321	2.19	1321
		MIN	-15.88	1122	-60.60	1322	-11.11	1021	-3.54	1021
	0.51	MAX	4.65	1211	77.98	1022	7.30	1321	3.42	1321
		MIN	-15.89	1122	-58.31	1322	-11.11	1021	-5.42	1021
	0.68	MAX	4.78	1211	77.64	1022	7.30	1321	4.66	1321
		MIN	-15.90	1122	-56.02	1322	-11.11	1021	-7.30	1021
	0.85	MAX	4.91	1211	77.30	1022	7.30	1321	5.89	1321
		MIN	-15.91	1122	-53.73	1322	-11.11	1021	-9.18	1021

MAX/MIN FORCE VALUES FOR MEMB 209, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	4.91	0.85	1211	79.01	0.00	1022			
	7.30	0.00	1321	5.89	0.85	1321	58.55 C	0.85	1022
MIN.	-15.91	0.85	1122	-65.17	0.00	1322			
	-11.11	0.85	1021	-9.18	0.85	1021	9.77 T	0.00	1322

210	0.00	MAX	13.24	1322	53.72	1322	12.79	1021	50.66	1321
		MIN	-18.89	1022	-77.32	1022	-12.43	1321	-52.12	1021
	0.82	MAX	13.22	1322	42.94	1322	12.79	1021	40.53	1321
		MIN	-18.92	1022	-65.79	1112	-12.43	1321	-41.70	1021
	1.63	MAX	13.19	1322	32.17	1322	12.79	1021	30.40	1321
		MIN	-18.95	1022	-52.45	1112	-12.43	1321	-31.27	1021
	2.45	MAX	13.17	1322	21.43	1322	12.79	1021	20.26	1321
		MIN	-20.18	1112	-37.03	1112	-12.43	1321	-20.85	1021
	3.26	MAX	13.14	1322	10.71	1322	12.79	1021	10.13	1321
		MIN	-22.71	1112	-19.55	1112	-12.43	1321	-10.42	1021
	4.08	MAX	13.12	1322	0.00	1013	12.79	1021	0.00	1214
		MIN	-25.25	1112	0.00	1212	-12.43	1321	0.00	1122

♀ STAAD SPACE -- PAGE NO. 14

MAX/MIN FORCE VALUES FOR MEMB 210, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	13.24	0.00	1322	53.72	0.00	1322			
	12.79	0.00	1021	50.66	0.00	1321	83.41 C	4.08	1022
MIN.	-25.25	4.08	1112	-77.32	0.00	1022			
	-12.43	4.08	1321	-52.12	0.00	1021	13.78 C	0.00	1322

301	0.00	MAX	17.50	1122	0.00	1322	12.64	1321	0.00	1221
		MIN	-38.91	1211	0.00	1112	-12.64	1221	0.00	1121
	0.84	MAX	17.46	1122	29.14	1211	12.64	1321	10.61	1321
		MIN	-30.52	1211	-14.67	1122	-12.64	1221	-10.61	1221
	1.68	MAX	17.43	1122	51.24	1211	12.64	1321	21.21	1321
		MIN	-22.13	1211	-29.32	1122	-12.64	1221	-21.21	1221
	2.52	MAX	17.40	1122	66.30	1211	12.64	1321	31.82	1321
		MIN	-14.27	1212	-43.94	1122	-12.64	1221	-31.82	1221
	3.36	MAX	17.36	1122	74.32	1211	12.64	1321	42.42	1321
		MIN	-13.27	1222	-58.53	1122	-12.64	1221	-42.42	1221
	4.20	MAX	17.33	1122	75.30	1211	12.64	1321	53.03	1321
		MIN	-13.30	1222	-73.09	1122	-12.64	1221	-53.03	1221

MAX/MIN FORCE VALUES FOR MEMB 301, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	17.50	0.00	1122	75.30	4.20	1211			
	12.64	0.00	1121	53.03	4.20	1121	63.28 C	0.00	1122
MIN.	-38.91	0.00	1211	-73.09	4.20	1122			
	-12.64	4.20	1221	-53.03	4.20	1221	6.34 T	4.20	1212

302	0.00	MAX	12.74	1022	72.78	1122	20.04	1221	17.06	1321
		MIN	-2.58	1322	-75.84	1211	-20.04	1321	-17.06	1221
	0.17	MAX	12.72	1022	72.90	1122	20.04	1221	13.66	1321
		MIN	-3.53	1211	-75.39	1211	-20.04	1321	-13.66	1221
	0.34	MAX	12.71	1022	73.02	1122	20.04	1221	10.26	1321
		MIN	-5.23	1211	-74.64	1211	-20.04	1321	-10.26	1221
	0.51	MAX	12.70	1022	73.14	1122	20.04	1221	6.86	1321
		MIN	-6.93	1211	-73.61	1211	-20.04	1321	-6.86	1221
	0.68	MAX	12.69	1022	73.26	1122	20.04	1221	3.46	1321
		MIN	-8.62	1211	-72.29	1211	-20.04	1321	-3.46	1221
	0.85	MAX	12.68	1022	73.38	1122	20.04	1221	0.06	1321
		MIN	-10.32	1211	-70.69	1211	-20.04	1321	-0.06	1221

♀ STAAD SPACE -- PAGE NO. 15

MAX/MIN FORCE VALUES FOR MEMB 302, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	12.74	0.00	1022	73.38	0.85	1122			
	20.04	0.00	1021	17.06	0.00	1121	46.98 C	0.00	1122
MIN.	-10.32	0.85	1211	-75.84	0.00	1211			
	-20.04	0.85	1321	-17.06	0.00	1221	21.28 T	0.00	1212

303	0.00	MAX	23.57	1013	73.38	1122	20.04	1221	0.07	1321
		MIN	-16.77	1211	-70.69	1211	-20.04	1321	-0.07	1221
	0.17	MAX	23.53	1013	69.45	1122	20.04	1221	3.33	1221
		MIN	-18.12	1211	-67.72	1211	-20.04	1321	-3.33	1321
	0.34	MAX	23.49	1013	65.53	1122	20.04	1221	6.74	1221
		MIN	-19.47	1211	-65.41	1222	-20.04	1321	-6.74	1321
	0.51	MAX	23.44	1013	62.04	1322	20.04	1221	10.14	1221
		MIN	-20.81	1211	-66.19	1022	-20.04	1321	-10.14	1321
	0.68	MAX	23.40	1013	59.07	1322	20.04	1221	13.55	1221
		MIN	-22.16	1211	-67.49	1022	-20.04	1321	-13.55	1321
	0.85	MAX	23.36	1013	56.11	1322	20.04	1221	16.95	1221
		MIN	-23.51	1211	-68.77	1022	-20.04	1321	-16.95	1321

MAX/MIN FORCE VALUES FOR MEMB 303, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD

MAX.	23.57	0.00	1013	73.38	0.00	1122			
	20.04	0.00	1021	16.95	0.85	1021	40.52 C	0.00	1122
MIN.	-23.51	0.85	1211	-70.69	0.00	1211			
	-20.04	0.85	1321	-16.95	0.85	1321	17.69 T	0.85	1222

304	0.00	MAX	22.04	1322	56.07	1322	0.00	1321	0.26	1221
		MIN	-30.33	1111	-68.82	1022	0.00	1021	-0.26	1321
	0.17	MAX	22.00	1322	52.33	1322	0.00	1321	0.26	1221
		MIN	-30.40	1111	-64.21	1022	0.00	1021	-0.26	1321
	0.34	MAX	21.95	1322	48.60	1322	0.00	1321	0.26	1221
		MIN	-30.47	1111	-59.58	1022	0.00	1021	-0.26	1321
	0.51	MAX	21.91	1322	44.88	1322	0.00	1321	0.26	1221
		MIN	-30.54	1111	-54.94	1022	0.00	1021	-0.26	1321
	0.68	MAX	21.86	1322	41.17	1322	0.00	1321	0.26	1221
		MIN	-30.61	1111	-50.29	1022	0.00	1021	-0.26	1321
	0.85	MAX	21.81	1322	37.46	1322	0.00	1321	0.26	1221
		MIN	-30.68	1111	-45.63	1022	0.00	1021	-0.26	1321

♀ STAAD SPACE -- PAGE NO. 16

MAX/MIN FORCE VALUES FOR MEMB 304, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	22.04	0.00	1322	56.07	0.00	1322			
	0.00	0.00	1321	0.26	0.00	1021	26.96 C	0.00	1011
MIN.	-30.68	0.85	1111	-68.82	0.00	1022			
	0.00	0.85	1021	-0.26	0.85	1321	1.45 C	0.85	1222

305	0.00	MAX	26.06	1122	37.46	1322	0.00	1221	0.28	1221
		MIN	-24.89	1222	-45.63	1022	0.00	1121	-0.28	1321
	0.33	MAX	25.94	1122	29.20	1322	0.00	1221	0.28	1221
		MIN	-24.98	1222	-37.72	1022	0.00	1121	-0.28	1321
	0.66	MAX	25.81	1122	20.97	1322	0.00	1221	0.28	1221
		MIN	-25.07	1222	-29.77	1022	0.00	1121	-0.28	1321
	0.98	MAX	25.69	1122	12.77	1322	0.00	1221	0.28	1221
		MIN	-25.16	1222	-21.78	1022	0.00	1121	-0.28	1321
	1.31	MAX	25.57	1122	4.60	1322	0.00	1221	0.28	1221
		MIN	-25.26	1222	-13.75	1022	0.00	1121	-0.28	1321
	1.64	MAX	25.44	1122	8.98	1211	0.00	1221	0.28	1221
		MIN	-25.35	1222	-10.48	1001	0.00	1121	-0.28	1321

MAX/MIN FORCE VALUES FOR MEMB 305, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.06	0.00	1122	37.46	0.00	1322			
	0.00	0.00	1221	0.28	0.00	1021	33.59 C	0.00	1011
MIN.	-25.35	1.64	1222	-45.63	0.00	1022			
	0.00	1.64	1121	-0.28	1.64	1321	7.47 C	1.64	1321

306	0.00	MAX	26.32	1122	8.98	1211	0.00	1221	0.28	1221
		MIN	-24.64	1222	-10.48	1001	0.00	1121	-0.28	1321
	0.33	MAX	26.19	1122	15.96	1211	0.00	1221	0.28	1221
		MIN	-24.74	1222	-14.93	1122	0.00	1121	-0.28	1321
	0.66	MAX	26.07	1122	22.98	1211	0.00	1221	0.28	1221
		MIN	-24.83	1222	-23.50	1122	0.00	1121	-0.28	1321
	0.98	MAX	24.95	1322	30.03	1211	0.00	1221	0.28	1221
		MIN	-26.43	1022	-31.62	1122	0.00	1121	-0.28	1321
	1.31	MAX	24.86	1322	37.11	1211	0.00	1221	0.28	1221
		MIN	-26.56	1022	-39.29	1122	0.00	1121	-0.28	1321
	1.64	MAX	24.77	1322	44.23	1211	0.00	1221	0.28	1221
		MIN	-26.68	1022	-46.92	1122	0.00	1121	-0.28	1321

♀ STAAD SPACE -- PAGE NO. 17

MAX/MIN FORCE VALUES FOR MEMB 306, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.32	0.00	1122	44.23	1.64	1211			
	0.00	0.00	1221	0.28	0.00	1021	34.76 C	1.64	1011
MIN.	-26.68	1.64	1022	-46.92	1.64	1122			

			0.00	1.64	1121	-0.28	1.64	1321	5.85	C	0.00	1322
307	0.00	MAX	25.62	1122	44.23	1211	0.00	1321	0.26	1221		
		MIN	-20.68	1222	-46.92	1122	0.00	1021	-0.26	1321		
	0.17	MAX	25.56	1122	46.32	1211	0.00	1321	0.26	1221		
		MIN	-20.73	1222	-51.26	1122	0.00	1021	-0.26	1321		
	0.34	MAX	25.50	1122	48.42	1211	0.00	1321	0.26	1221		
		MIN	-20.77	1222	-55.60	1122	0.00	1021	-0.26	1321		
	0.51	MAX	25.44	1122	50.53	1211	0.00	1321	0.26	1221		
		MIN	-20.82	1222	-59.92	1122	0.00	1021	-0.26	1321		
	0.68	MAX	25.38	1122	52.64	1211	0.00	1321	0.26	1221		
		MIN	-20.86	1222	-64.23	1122	0.00	1021	-0.26	1321		
	0.85	MAX	25.32	1122	55.56	1222	0.00	1321	0.26	1221		
		MIN	-20.91	1222	-68.53	1122	0.00	1021	-0.26	1321		

MAX/MIN FORCE VALUES FOR MEMB 307, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	25.62	0.00	1122	55.56	0.85	1222			
	0.00	0.00	1321	0.26	0.00	1021	39.95 C	0.85	1011
MIN.	-20.91	0.85	1222	-68.53	0.85	1122			
	0.00	0.85	1021	-0.26	0.85	1321	1.78 T	0.00	1322

308	0.00	MAX	-0.83	1214	55.60	1222	20.04	1321	16.95	1221			
		MIN	-28.64	1012	-68.48	1122	-20.04	1221	-16.95	1321			
	0.17	MAX	-0.87	1214	58.58	1222	20.04	1321	13.55	1221			
		MIN	-27.99	1012	-67.15	1122	-20.04	1221	-13.55	1321			
	0.34	MAX	-0.90	1214	61.56	1222	20.04	1321	10.14	1221			
		MIN	-27.34	1012	-65.81	1122	-20.04	1221	-10.14	1321			
	0.51	MAX	-0.94	1214	65.05	1022	20.04	1321	6.74	1221			
		MIN	-26.70	1012	-64.95	1322	-20.04	1221	-6.74	1321			
	0.68	MAX	-0.97	1214	69.06	1022	20.04	1321	3.33	1221			
		MIN	-26.05	1012	-64.61	1322	-20.04	1221	-3.33	1321			
	0.85	MAX	-1.00	1214	73.08	1022	20.04	1321	0.07	1321			
		MIN	-25.40	1012	-64.26	1322	-20.04	1221	-0.07	1221			

MAX/MIN FORCE VALUES FOR MEMB 308, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	-0.83	0.00	1214	73.08	0.85	1022			
	20.04	0.00	1121	16.95	0.00	1021	41.02 C	0.85	1022
MIN.	-28.64	0.00	1012	-68.48	0.00	1122			
	-20.04	0.85	1221	-16.95	0.00	1321	17.62 T	0.00	1322

309	0.00	MAX	2.48	1222	73.08	1022	20.04	1321	0.06	1321			
		MIN	-12.61	1122	-64.26	1322	-20.04	1221	-0.06	1221			
	0.17	MAX	2.47	1222	72.99	1022	20.04	1321	3.46	1321			
		MIN	-12.62	1122	-62.45	1322	-20.04	1221	-3.46	1221			
	0.34	MAX	2.47	1222	72.90	1022	20.04	1321	6.86	1321			
		MIN	-12.63	1122	-60.64	1322	-20.04	1221	-6.86	1221			
	0.51	MAX	2.46	1222	72.81	1022	20.04	1321	10.26	1321			
		MIN	-12.64	1122	-58.82	1322	-20.04	1221	-10.26	1221			
	0.68	MAX	2.45	1222	73.75	1112	20.04	1321	13.66	1321			
		MIN	-12.65	1122	-57.01	1322	-20.04	1221	-13.66	1221			
	0.85	MAX	2.44	1222	74.58	1112	20.04	1321	17.06	1321			
		MIN	-12.66	1122	-55.20	1322	-20.04	1221	-17.06	1221			

MAX/MIN FORCE VALUES FOR MEMB 309, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	2.48	0.00	1222	74.58	0.85	1112			
	20.04	0.00	1121	17.06	0.85	1121	47.67 C	0.85	1022
MIN.	-12.66	0.85	1122	-64.26	0.00	1322			
	-20.04	0.85	1221	-17.06	0.85	1221	13.95 T	0.00	1322

310	0.00	MAX	13.22	1322	55.24	1322	12.64	1221	53.03	1321			
		MIN	-17.30	1022	-74.52	1112	-12.64	1321	-53.03	1221			

	0.84	MAX	13.20	1322	44.15	1322	12.64	1221	42.42	1321			
		MIN	-17.33	1022	-68.31	1112	-12.64	1321	-42.42	1221			
	1.68	MAX	13.17	1322	33.08	1322	12.64	1221	31.82	1321			
		MIN	-17.36	1022	-57.76	1112	-12.64	1321	-31.82	1221			
	2.52	MAX	13.15	1322	22.03	1322	12.64	1221	21.21	1321			
		MIN	-20.34	1112	-42.85	1112	-12.64	1321	-21.21	1221			
	3.36	MAX	13.12	1322	11.01	1322	12.64	1221	10.61	1321			
		MIN	-25.53	1112	-23.60	1112	-12.64	1321	-10.61	1221			
	4.20	MAX	13.10	1322	0.00	1321	12.64	1221	0.00	1221			
		MIN	-30.71	1112	0.00	1212	-12.64	1321	0.00	1121			

MAX/MIN FORCE VALUES FOR MEMB 310, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	13.22	0.00	1322	55.24	0.00	1322			
	12.64	0.00	1021	53.03	0.00	1121	64.00 C	4.20	1022
MIN.	-30.71	4.20	1112	-74.52	0.00	1112			
	-12.64	4.20	1321	-53.03	0.00	1221	2.16 C	0.00	1322

401	0.00	MAX	19.13	1122	0.00	1322	12.79	1121	0.00	1221			
		MIN	-28.23	1211	0.00	1112	-12.43	1221	0.00	1121			
	0.82	MAX	19.10	1122	21.36	1211	12.79	1121	10.42	1121			
		MIN	-24.17	1211	-15.59	1122	-12.43	1221	-10.13	1221			
	1.63	MAX	19.07	1122	39.40	1211	12.79	1121	20.85	1121			
		MIN	-20.11	1211	-31.14	1122	-12.43	1221	-20.26	1221			
	2.45	MAX	19.04	1122	54.14	1211	12.79	1121	31.27	1121			
		MIN	-16.18	1212	-46.68	1122	-12.43	1221	-30.40	1221			
	3.26	MAX	19.00	1122	65.57	1211	12.79	1121	41.70	1121			
		MIN	-13.94	1212	-62.18	1122	-12.43	1221	-40.53	1221			
	4.08	MAX	18.97	1122	73.69	1211	12.79	1121	52.12	1121			
		MIN	-13.29	1222	-77.66	1122	-12.43	1221	-50.66	1221			

MAX/MIN FORCE VALUES FOR MEMB 401, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	19.13	0.00	1122	73.69	4.08	1211			
	12.79	0.00	1121	52.12	4.08	1121	83.47 C	0.00	1122
MIN.	-28.23	0.00	1211	-77.66	4.08	1122			
	-12.43	4.08	1221	-50.66	4.08	1221	3.85 T	4.08	1212

402	0.00	MAX	15.87	1022	77.64	1122	7.29	1221	9.18	1121			
		MIN	-4.39	1322	-73.69	1211	-11.11	1121	-5.88	1221			
	0.17	MAX	15.86	1022	77.99	1122	7.29	1221	7.30	1121			
		MIN	-4.40	1322	-74.05	1211	-11.11	1121	-4.65	1221			
	0.34	MAX	15.85	1022	78.34	1122	7.29	1221	5.42	1121			
		MIN	-4.40	1322	-74.26	1211	-11.11	1121	-3.42	1221			
	0.51	MAX	15.84	1022	78.70	1122	7.29	1221	3.54	1121			
		MIN	-4.41	1322	-74.33	1211	-11.11	1121	-2.18	1221			
	0.68	MAX	15.83	1022	79.06	1122	7.29	1221	1.66	1121			
		MIN	-4.42	1322	-74.26	1211	-11.11	1121	-0.95	1221			
	0.85	MAX	15.82	1022	79.42	1122	7.29	1221	0.29	1021			
		MIN	-4.43	1322	-74.66	1212	-11.11	1121	-0.22	1321			

MAX/MIN FORCE VALUES FOR MEMB 402, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	15.87	0.00	1022	79.42	0.85	1122			
	7.29	0.00	1221	9.18	0.00	1121	58.64 C	0.00	1122
MIN.	-4.43	0.85	1322	-74.66	0.85	1212			
	-11.11	0.85	1121	-5.88	0.00	1221	28.15 T	0.00	1212

403	0.00	MAX	32.81	1013	79.42	1122	7.29	1221	0.27	1021			
		MIN	-12.19	1211	-74.66	1212	-11.11	1121	-0.20	1321			
	0.17	MAX	32.77	1013	74.68	1122	7.29	1221	1.50	1221			
		MIN	-12.88	1211	-72.74	1212	-11.11	1121	-2.08	1121			
	0.34	MAX	32.73	1013	69.96	1122	7.29	1221	2.74	1221			
		MIN	-13.57	1211	-70.75	1212	-11.11	1121	-3.97	1121			

	0.51	MAX	32.68	1013	65.98	1322	7.29	1221	3.97	1221
		MIN	-14.26	1211	-69.49	1022	-11.11	1121	-5.85	1121
	0.68	MAX	32.64	1013	62.54	1322	7.29	1221	5.21	1221
		MIN	-14.94	1211	-71.87	1022	-11.11	1121	-7.73	1121
	0.85	MAX	32.60	1013	59.11	1322	7.29	1221	6.44	1221
		MIN	-15.63	1211	-74.24	1022	-11.11	1121	-9.62	1121

MAX/MIN FORCE VALUES FOR MEMB 403, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	32.81	0.00	1013	79.42	0.00	1122			
	7.29	0.00	1221	6.44	0.85	1221	51.23 C	0.00	1122
MIN.	-15.63	0.85	1211	-74.66	0.00	1212			
	-11.11	0.85	1121	-9.62	0.85	1121	25.98 T	0.00	1212

404	0.00	MAX	24.75	1322	59.08	1322	0.00	1022	0.13	1221
		MIN	-28.67	1111	-74.27	1022	0.00	1211	-0.26	1121
	0.17	MAX	24.71	1322	54.90	1322	0.00	1022	0.13	1221
		MIN	-28.75	1111	-69.71	1022	0.00	1211	-0.26	1121
	0.34	MAX	24.66	1322	50.72	1322	0.00	1022	0.13	1221
		MIN	-28.82	1111	-65.14	1022	0.00	1211	-0.26	1121
	0.51	MAX	24.62	1322	46.55	1322	0.00	1022	0.13	1221
		MIN	-28.89	1111	-60.55	1022	0.00	1211	-0.26	1121
	0.68	MAX	24.57	1322	42.39	1322	0.00	1022	0.13	1221
		MIN	-28.96	1111	-55.96	1022	0.00	1211	-0.26	1121
	0.85	MAX	24.53	1322	38.24	1322	0.00	1022	0.13	1221
		MIN	-29.03	1111	-51.36	1022	0.00	1211	-0.26	1121

MAX/MIN FORCE VALUES FOR MEMB 404, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	24.75	0.00	1322	59.08	0.00	1322			
	0.00	0.00	1022	0.13	0.00	1221	15.05 C	0.00	1122
MIN.	-29.03	0.85	1111	-74.27	0.00	1022			
	0.00	0.85	1211	-0.26	0.00	1121	3.82 T	0.85	1222

405	0.00	MAX	27.14	1122	38.24	1322	0.00	1022	0.14	1221
		MIN	-26.42	1222	-51.36	1022	0.00	1211	-0.27	1121
	0.33	MAX	27.02	1122	29.43	1322	0.00	1022	0.14	1221
		MIN	-26.52	1222	-42.75	1022	0.00	1211	-0.27	1121
	0.65	MAX	26.90	1122	20.64	1322	0.00	1022	0.14	1221
		MIN	-26.61	1222	-34.09	1022	0.00	1211	-0.27	1121
	0.98	MAX	26.77	1122	11.89	1322	0.00	1022	0.14	1221
		MIN	-26.70	1222	-25.40	1022	0.00	1211	-0.27	1121
	1.31	MAX	26.68	1322	3.17	1322	0.00	1022	0.14	1221
		MIN	-26.82	1022	-16.66	1022	0.00	1211	-0.27	1121
	1.63	MAX	26.59	1322	3.97	1211	0.00	1022	0.14	1221
		MIN	-26.95	1022	-11.85	1013	0.00	1211	-0.27	1121

MAX/MIN FORCE VALUES FOR MEMB 405, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	27.14	0.00	1122	38.24	0.00	1322			
	0.00	0.00	1022	0.14	0.00	1221	17.02 C	0.00	1011
MIN.	-26.95	1.63	1022	-51.36	0.00	1022			
	0.00	1.63	1211	-0.27	0.00	1121	2.62 C	1.63	1221

406	0.00	MAX	26.96	1122	3.97	1211	0.00	1022	0.14	1221
		MIN	-26.53	1222	-11.85	1013	0.00	1211	-0.27	1121
	0.33	MAX	26.84	1122	12.17	1211	0.00	1022	0.14	1221
		MIN	-26.62	1222	-17.03	1122	0.00	1211	-0.27	1121
	0.65	MAX	26.72	1122	20.40	1211	0.00	1022	0.14	1221
		MIN	-26.71	1222	-25.77	1122	0.00	1211	-0.27	1121
	0.98	MAX	26.59	1122	28.66	1211	0.00	1022	0.14	1221
		MIN	-26.80	1222	-34.47	1122	0.00	1211	-0.27	1121
	1.31	MAX	26.47	1122	36.96	1211	0.00	1022	0.14	1221
		MIN	-26.90	1222	-43.13	1122	0.00	1211	-0.27	1121
	1.63	MAX	26.36	1322	45.29	1211	0.00	1022	0.14	1221
		MIN	-27.00	1022	-51.74	1122	0.00	1211	-0.27	1121

MAX/MIN FORCE VALUES FOR MEMB 406, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.96	0.00	1122	45.29	1.63	1211			
	0.00	0.00	1022	0.14	0.00	1221	18.55 C	1.63	1011
MIN.	-27.00	1.63	1022	-51.74	1.63	1122			
	0.00	1.63	1211	-0.27	0.00	1121	2.46 C	0.00	1322

407	0.00	MAX	26.73	1122	45.29	1211	0.00	1022	0.13	1221
		MIN	-23.94	1222	-51.74	1122	0.00	1211	-0.26	1121
	0.17	MAX	26.67	1122	48.63	1211	0.00	1022	0.13	1221
		MIN	-23.99	1222	-56.26	1122	0.00	1211	-0.26	1121
	0.34	MAX	26.61	1122	51.98	1211	0.00	1022	0.13	1221
		MIN	-24.03	1222	-60.77	1122	0.00	1211	-0.26	1121
	0.51	MAX	26.55	1122	55.33	1211	0.00	1022	0.13	1221
		MIN	-24.08	1222	-65.26	1122	0.00	1211	-0.26	1121
	0.68	MAX	26.49	1122	58.69	1211	0.00	1022	0.13	1221
		MIN	-24.12	1222	-69.75	1122	0.00	1211	-0.26	1121
	0.85	MAX	26.43	1122	62.07	1211	0.00	1022	0.13	1221
		MIN	-24.17	1222	-74.22	1122	0.00	1211	-0.26	1121

MAX/MIN FORCE VALUES FOR MEMB 407, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	26.73	0.00	1122	62.07	0.85	1211			
	0.00	0.00	1022	0.13	0.00	1221	24.67 C	0.85	1111
MIN.	-24.17	0.85	1222	-74.22	0.85	1122			
	0.00	0.85	1211	-0.26	0.00	1121	5.49 T	0.00	1322

408	0.00	MAX	0.35	1214	62.08	1211	11.10	1121	6.44	1221
		MIN	-32.63	1013	-74.19	1122	-7.29	1221	-9.61	1121
	0.17	MAX	0.31	1214	64.27	1211	11.10	1121	5.21	1221
		MIN	-32.68	1013	-71.82	1122	-7.29	1221	-7.73	1121
	0.34	MAX	0.28	1214	66.45	1211	11.10	1121	3.97	1221
		MIN	-32.72	1013	-69.45	1122	-7.29	1221	-5.84	1121
	0.51	MAX	0.25	1214	69.54	1022	11.10	1121	2.74	1221
		MIN	-32.76	1013	-67.40	1322	-7.29	1221	-3.96	1121
	0.68	MAX	0.21	1214	74.27	1022	11.10	1121	1.50	1221
		MIN	-32.80	1013	-66.29	1322	-7.29	1221	-2.08	1121
	0.85	MAX	0.18	1214	79.01	1022	11.10	1121	0.27	1021
		MIN	-32.84	1013	-65.17	1322	-7.29	1221	-0.20	1321

MAX/MIN FORCE VALUES FOR MEMB 408, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.35	0.00	1214	79.01	0.85	1022			
	11.10	0.00	1121	6.44	0.00	1221	51.11 C	0.85	1022
MIN.	-32.84	0.85	1013	-74.19	0.00	1122			
	-7.29	0.85	1221	-9.61	0.00	1121	15.47 T	0.00	1322

409	0.00	MAX	4.41	1222	79.01	1022	11.10	1121	0.29	1021
		MIN	-15.86	1122	-65.17	1322	-7.29	1221	-0.22	1321
	0.17	MAX	4.40	1222	78.66	1022	11.10	1121	1.66	1121
		MIN	-15.87	1122	-62.88	1322	-7.29	1221	-0.95	1221
	0.34	MAX	4.52	1211	78.32	1022	11.10	1121	3.54	1121
		MIN	-15.88	1122	-60.60	1322	-7.29	1221	-2.18	1221
	0.51	MAX	4.65	1211	77.98	1022	11.10	1121	5.42	1121
		MIN	-15.89	1122	-58.31	1322	-7.29	1221	-3.42	1221
	0.68	MAX	4.78	1211	77.64	1022	11.10	1121	7.29	1121
		MIN	-15.90	1122	-56.02	1322	-7.29	1221	-4.65	1221
	0.85	MAX	4.91	1211	77.30	1022	11.10	1121	9.17	1121
		MIN	-15.91	1122	-53.73	1322	-7.29	1221	-5.88	1221

MAX/MIN FORCE VALUES FOR MEMB 409, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	4.91	0.85	1211	79.01	0.00	1022			
	11.10	0.00	1121	9.17	0.85	1121	58.55 C	0.85	1022
MIN.	-15.91	0.85	1122	-65.17	0.00	1322			
	-7.29	0.85	1221	-5.88	0.85	1221	9.77 T	0.00	1322

410	0.00	MAX	13.24	1322	53.72	1322	12.43	1221	52.12	1121
		MIN	-18.89	1022	-77.32	1022	-12.79	1121	-50.66	1221
	0.82	MAX	13.22	1322	42.94	1322	12.43	1221	41.70	1121
		MIN	-18.92	1022	-65.79	1112	-12.79	1121	-40.53	1221
	1.63	MAX	13.19	1322	32.17	1322	12.43	1221	31.27	1121
		MIN	-18.95	1022	-52.45	1112	-12.79	1121	-30.40	1221
	2.45	MAX	13.17	1322	21.43	1322	12.43	1221	20.85	1121
		MIN	-20.18	1112	-37.03	1112	-12.79	1121	-20.26	1221
	3.26	MAX	13.14	1322	10.71	1322	12.43	1221	10.42	1121
		MIN	-22.71	1112	-19.55	1112	-12.79	1121	-10.13	1221
	4.08	MAX	13.12	1322	0.00	1222	12.43	1221	0.00	1221
		MIN	-25.25	1112	0.00	1112	-12.79	1121	0.00	1121

MAX/MIN FORCE VALUES FOR MEMB 410, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	13.24	0.00	1322	53.72	0.00	1322			
	12.43	0.00	1221	52.12	0.00	1121	83.41 C	4.08	1022
MIN.	-25.25	4.08	1112	-77.32	0.00	1022			
	-12.79	4.08	1121	-50.66	0.00	1221	13.78 C	0.00	1322

1001	0.00	MAX	0.00	1221	0.00	1222	0.00	1121	0.00	1022
		MIN	0.00	1121	0.00	1112	0.00	1221	0.00	1212
	0.60	MAX	0.36	1214	1.39	1013	0.00	1121	0.00	1022
		MIN	-4.62	1013	-0.11	1214	0.00	1221	0.00	1211
	1.20	MAX	0.73	1214	5.54	1013	0.00	1121	0.00	1121
		MIN	-9.24	1013	-0.44	1214	0.00	1221	0.00	1221
	1.80	MAX	1.09	1214	12.48	1013	0.00	1121	0.00	1121
		MIN	-13.86	1013	-0.98	1214	0.00	1221	0.00	1221
	2.40	MAX	1.45	1214	22.18	1013	0.00	1121	0.00	1121
		MIN	-18.48	1013	-1.74	1214	0.00	1221	0.00	1221
	3.00	MAX	1.81	1214	34.65	1013	0.00	1121	0.00	1121
		MIN	-23.10	1013	-2.72	1214	0.00	1221	0.00	1221

MAX/MIN FORCE VALUES FOR MEMB 1001, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	1.81	3.00	1214	34.65	3.00	1013			
	0.00	0.00	1121	0.00	3.00	1121	0.04 C	3.00	1214
MIN.	-23.10	3.00	1013	-2.72	3.00	1214			
	0.00	3.00	1221	0.00	3.00	1221	0.57 T	3.00	1013

1002	0.00	MAX	24.02	1013	32.80	1013	1.77	1321	5.85	1021
		MIN	-2.17	1214	-3.44	1214	-2.34	1021	-3.93	1321
	1.00	MAX	16.32	1013	12.62	1013	1.77	1321	3.50	1021
		MIN	-1.56	1214	-1.57	1214	-2.34	1021	-2.16	1321
	2.00	MAX	8.62	1013	1.01	1121	1.77	1321	1.16	1021
		MIN	-0.96	1214	-1.01	1221	-2.34	1021	-0.40	1321
	3.00	MAX	2.97	1121	0.74	1212	1.77	1321	1.41	1121
		MIN	-2.26	1221	-4.63	1013	-2.34	1021	-1.22	1221
	4.00	MAX	0.25	1214	3.50	1221	1.77	1321	3.14	1321
		MIN	-6.77	1013	-4.93	1121	-2.34	1021	-3.52	1021
	5.00	MAX	0.86	1214	12.21	1021	1.77	1321	4.91	1321
		MIN	-14.47	1013	-2.78	1321	-2.34	1021	-5.86	1021

MAX/MIN FORCE VALUES FOR MEMB 1002, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	24.02	0.00	1013	32.80	0.00	1013			

	1.77	0.00	1321	5.85	0.00	1021	14.95 C	0.00	1012
MIN.	-14.47	5.00	1013	-4.93	4.00	1121			
	-2.34	5.00	1021	-5.86	5.00	1021	0.23 C	5.00	1321

1003	0.00	MAX	14.47	1013	12.20	1121	2.34	1121	4.91	1221
		MIN	-0.86	1214	-2.76	1221	-1.77	1221	-5.86	1121
	1.00	MAX	6.77	1013	3.49	1321	2.34	1121	3.14	1221
		MIN	-0.25	1214	-4.92	1021	-1.77	1221	-3.52	1121
	2.00	MAX	2.25	1321	0.74	1212	2.34	1121	1.41	1021
		MIN	-2.96	1021	-4.63	1013	-1.77	1221	-1.22	1321
	3.00	MAX	0.96	1214	1.01	1021	2.34	1121	1.16	1121
		MIN	-8.62	1013	-1.01	1321	-1.77	1221	-0.39	1221
	4.00	MAX	1.56	1214	12.62	1013	2.34	1121	3.50	1121
		MIN	-16.32	1013	-1.57	1214	-1.77	1221	-2.16	1221
	5.00	MAX	2.17	1214	32.80	1013	2.34	1121	5.84	1121
		MIN	-24.02	1013	-3.44	1214	-1.77	1221	-3.93	1221

MAX/MIN FORCE VALUES FOR MEMB 1003, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	14.47	0.00	1013	32.80	5.00	1013			
	2.34	0.00	1121	5.84	5.00	1121	14.95 C	5.00	1012
MIN.	-24.02	5.00	1013	-4.92	1.00	1021			
	-1.77	5.00	1221	-5.86	0.00	1121	1.25 C	0.00	1221

1004	0.00	MAX	23.10	1013	34.65	1013	0.00	1321	0.00	1021
		MIN	-1.81	1214	-2.72	1214	0.00	1021	0.00	1321
	0.60	MAX	18.48	1013	22.18	1013	0.00	1321	0.00	1021
		MIN	-1.45	1214	-1.74	1214	0.00	1021	0.00	1321
	1.20	MAX	13.86	1013	12.48	1013	0.00	1321	0.00	1021
		MIN	-1.09	1214	-0.98	1214	0.00	1021	0.00	1321
	1.80	MAX	9.24	1013	5.54	1013	0.00	1321	0.00	1021
		MIN	-0.73	1214	-0.44	1214	0.00	1021	0.00	1321
	2.40	MAX	4.62	1013	1.39	1013	0.00	1321	0.00	1221
		MIN	-0.36	1214	-0.11	1214	0.00	1021	0.00	1121
	3.00	MAX	0.00	1021	0.00	1022	0.00	1321	0.00	1021
		MIN	0.00	1321	0.00	1322	0.00	1021	0.00	1321

MAX/MIN FORCE VALUES FOR MEMB 1004, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	23.10	0.00	1013	34.65	0.00	1013			
	0.00	0.00	1321	0.00	0.00	1021	0.04 C	0.00	1214
MIN.	-1.81	0.00	1214	-2.72	0.00	1214			
	0.00	3.00	1021	0.00	0.00	1321	0.57 T	0.00	1013

2001	0.00	MAX	0.00	1112	0.00	1112	0.00	1221	0.00	1121
		MIN	0.00	1321	0.00	1221	0.00	1121	0.00	1221
	0.60	MAX	0.36	1214	1.39	1013	0.00	1221	0.00	1022
		MIN	-4.62	1013	-0.11	1214	0.00	1121	0.00	1322
	1.20	MAX	0.73	1214	5.54	1013	0.00	1221	0.00	1221
		MIN	-9.24	1013	-0.44	1214	0.00	1121	0.00	1121
	1.80	MAX	1.09	1214	12.48	1013	0.00	1221	0.00	1221
		MIN	-13.86	1013	-0.98	1214	0.00	1121	0.00	1121
	2.40	MAX	1.45	1214	22.18	1013	0.00	1221	0.00	1221
		MIN	-18.48	1013	-1.74	1214	0.00	1121	0.00	1121
	3.00	MAX	1.81	1214	34.65	1013	0.00	1221	0.00	1221
		MIN	-23.10	1013	-2.72	1214	0.00	1121	0.00	1121

MAX/MIN FORCE VALUES FOR MEMB 2001, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	1.81	3.00	1214	34.65	3.00	1013			
	0.00	0.00	1221	0.00	3.00	1221	0.04 C	3.00	1214
MIN.	-23.10	3.00	1013	-2.72	3.00	1214			
	0.00	3.00	1121	0.00	3.00	1121	0.57 T	3.00	1013

2002	0.00	MAX	24.05	1013	32.82	1013	2.34	1021	3.93	1321
		MIN	-2.17	1214	-3.44	1214	-1.77	1321	-5.84	1021
	1.00	MAX	16.36	1013	12.61	1013	2.34	1021	2.16	1321
		MIN	-1.56	1214	-1.57	1214	-1.77	1321	-3.50	1021
	2.00	MAX	8.66	1013	1.00	1321	2.34	1021	0.40	1321
		MIN	-0.96	1214	-1.02	1021	-1.77	1321	-1.16	1021
	3.00	MAX	2.98	1121	0.34	1214	2.34	1021	1.22	1321
		MIN	-2.26	1221	-4.71	1013	-1.77	1321	-1.41	1121
	4.00	MAX	0.28	1212	3.50	1221	2.34	1021	3.52	1021
		MIN	-6.75	1021	-4.98	1121	-1.77	1321	-3.14	1321
	5.00	MAX	0.86	1214	12.15	1021	2.34	1021	5.86	1021
		MIN	-14.44	1013	-2.78	1321	-1.77	1321	-4.91	1321

MAX/MIN FORCE VALUES FOR MEMB 2002, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	24.05	0.00	1013	32.82	0.00	1013			
	2.34	0.00	1021	5.86	5.00	1021	11.37 C	0.00	1001
MIN.	-14.44	5.00	1013	-4.98	4.00	1121			
	-1.77	5.00	1321	-5.84	0.00	1021	0.23 C	5.00	1321

2003	0.00	MAX	14.44	1013	12.13	1121	1.77	1221	5.86	1121
		MIN	-0.86	1214	-2.76	1221	-2.34	1121	-4.91	1221
	1.00	MAX	6.75	1121	3.49	1321	1.77	1221	3.52	1121
		MIN	-0.28	1212	-4.97	1021	-2.34	1121	-3.14	1221
	2.00	MAX	2.25	1321	0.34	1214	1.77	1221	1.22	1321
		MIN	-2.98	1021	-4.71	1013	-2.34	1121	-1.41	1021
	3.00	MAX	0.96	1214	1.00	1221	1.77	1221	0.39	1221
		MIN	-8.66	1013	-1.02	1121	-2.34	1121	-1.16	1121
	4.00	MAX	1.56	1214	12.61	1013	1.77	1221	2.16	1221
		MIN	-16.36	1013	-1.57	1214	-2.34	1121	-3.50	1121
	5.00	MAX	2.17	1214	32.82	1013	1.77	1221	3.93	1221
		MIN	-24.05	1013	-3.44	1214	-2.34	1121	-5.83	1121

MAX/MIN FORCE VALUES FOR MEMB 2003, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	14.44	0.00	1013	32.82	5.00	1013			
	1.77	0.00	1221	5.86	0.00	1121	11.37 C	5.00	1001
MIN.	-24.05	5.00	1013	-4.97	1.00	1021			
	-2.34	5.00	1121	-5.83	5.00	1121	1.25 C	0.00	1221

2004	0.00	MAX	23.10	1013	34.65	1013	0.00	1121	0.00	1221
		MIN	-1.81	1214	-2.72	1214	0.00	1221	0.00	1121
	0.60	MAX	18.48	1013	22.18	1013	0.00	1121	0.00	1221
		MIN	-1.45	1214	-1.74	1214	0.00	1221	0.00	1121
	1.20	MAX	13.86	1013	12.48	1013	0.00	1121	0.00	1021
		MIN	-1.09	1214	-0.98	1214	0.00	1221	0.00	1321
	1.80	MAX	9.24	1013	5.54	1013	0.00	1121	0.00	1021
		MIN	-0.73	1214	-0.44	1214	0.00	1221	0.00	1321
	2.40	MAX	4.62	1013	1.39	1013	0.00	1121	0.00	1022
		MIN	-0.36	1214	-0.11	1214	0.00	1221	0.00	1322
	3.00	MAX	0.00	1021	0.00	1211	0.00	1121	0.00	1121
		MIN	0.00	1321	0.00	1121	0.00	1221	0.00	1221

MAX/MIN FORCE VALUES FOR MEMB 2004, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	23.10	0.00	1013	34.65	0.00	1013			
	0.00	0.00	1121	0.00	0.00	1221	0.04 C	0.00	1214
MIN.	-1.81	0.00	1214	-2.72	0.00	1214			
	0.00	3.00	1221	0.00	0.00	1121	0.57 T	0.00	1013

3001	0.00	MAX	0.00	1321	0.00	1122	0.00	1221	0.00	1211
		MIN	0.00	1212	0.00	1222	0.00	1121	0.00	1021
	0.60	MAX	0.00	1321	0.00	1122	3.01	1114	0.90	1114
		MIN	0.00	1212	0.00	1222	1.94	1322	0.58	1322

	1.20	MAX	0.00	1321	0.00	1122	6.02	1114	3.61	1114
		MIN	0.00	1212	0.00	1222	3.87	1322	2.32	1322
	1.80	MAX	0.00	1321	0.00	1122	9.03	1114	8.13	1114
		MIN	0.00	1212	0.00	1222	5.81	1322	5.23	1322
	2.40	MAX	0.00	1321	0.00	1122	12.04	1114	14.45	1114
		MIN	0.00	1212	0.00	1222	7.74	1322	9.29	1322
	3.00	MAX	0.00	1321	0.00	1022	15.05	1114	22.58	1114
		MIN	0.00	1212	0.00	1322	9.68	1322	14.52	1322

MAX/MIN FORCE VALUES FOR MEMB 3001, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.00	0.00	1321	0.00	3.00	1022			
	15.05	3.00	1001	22.58	3.00	1001	0.00 C	0.00	1021
MIN.	0.00	3.00	1212	0.00	3.00	1322			
	0.00	0.00	1121	0.00	0.00	1021	0.36 T	3.00	1114

3002	0.00	MAX	0.69	1221	4.05	1221	8.81	1221	74.81	1121
		MIN	-2.28	1111	-4.46	1121	-31.61	1121	-45.65	1221
	1.00	MAX	0.69	1221	3.42	1021	12.03	1221	45.35	1121
		MIN	-2.28	1111	-2.86	1321	-27.30	1121	-35.22	1221
	2.00	MAX	0.69	1221	4.27	1111	15.26	1221	20.42	1321
		MIN	-2.28	1111	-1.34	1321	-23.00	1121	-21.81	1021
	3.00	MAX	0.69	1221	6.55	1111	18.48	1221	0.10	1321
		MIN	-2.28	1111	-0.96	1222	-18.70	1121	-5.48	1021
	4.00	MAX	0.69	1221	8.83	1111	22.77	1021	15.40	1221
		MIN	-2.28	1111	-1.23	1222	-15.47	1321	-17.23	1121
	5.00	MAX	0.69	1221	11.12	1111	27.07	1021	40.08	1021
		MIN	-2.28	1111	-1.50	1222	-12.24	1321	-30.85	1321

MAX/MIN FORCE VALUES FOR MEMB 3002, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.69	0.00	1221	11.12	5.00	1111			
	27.07	5.00	1021	74.81	0.00	1121	6.50 C	0.00	1121
MIN.	-2.28	5.00	1111	-4.46	0.00	1121			
	-31.61	0.00	1121	-45.65	0.00	1221	15.61 T	5.00	1214

3003	0.00	MAX	2.28	1111	11.12	1111	12.24	1221	40.07	1121
		MIN	-0.71	1321	-1.50	1222	-27.07	1121	-30.84	1221
	1.00	MAX	2.28	1111	8.83	1111	15.47	1221	15.39	1321
		MIN	-0.71	1321	-1.23	1222	-22.77	1121	-17.23	1021
	2.00	MAX	2.28	1111	6.55	1111	18.70	1021	0.10	1221
		MIN	-0.71	1321	-0.96	1222	-18.48	1321	-5.48	1121
	3.00	MAX	2.28	1111	4.27	1111	23.00	1021	20.41	1221
		MIN	-0.71	1321	-1.31	1221	-15.25	1321	-21.80	1121
	4.00	MAX	2.28	1111	3.40	1121	27.30	1021	45.34	1021
		MIN	-0.71	1321	-2.85	1221	-12.03	1321	-35.22	1321
	5.00	MAX	2.28	1111	4.05	1321	31.60	1021	74.80	1021
		MIN	-0.71	1321	-4.46	1021	-8.80	1321	-45.64	1321

MAX/MIN FORCE VALUES FOR MEMB 3003, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	2.28	0.00	1111	11.12	0.00	1111			
	31.60	5.00	1021	74.80	5.00	1021	6.51 C	5.00	1021
MIN.	-0.71	5.00	1321	-4.46	5.00	1021			
	-27.07	0.00	1121	-45.64	5.00	1321	15.61 T	0.00	1214

3004	0.00	MAX	0.00	1212	0.00	1212	-9.68	1322	22.58	1114
		MIN	0.00	1122	0.00	1122	-15.05	1114	14.52	1322
	0.60	MAX	0.00	1212	0.00	1212	-7.74	1322	14.45	1114
		MIN	0.00	1122	0.00	1122	-12.04	1114	9.29	1322
	1.20	MAX	0.00	1212	0.00	1211	-5.81	1322	8.13	1114
		MIN	0.00	1122	0.00	1122	-9.03	1114	5.23	1322
	1.80	MAX	0.00	1212	0.00	1211	-3.87	1322	3.61	1114
		MIN	0.00	1122	0.00	1122	-6.02	1114	2.32	1322
	2.40	MAX	0.00	1212	0.00	1211	-1.94	1322	0.90	1114
		MIN	0.00	1122	0.00	1112	-3.01	1114	0.58	1322

	3.00	MAX	0.00	1212	0.00	1322	0.00	1021	0.00	1021
		MIN	0.00	1122	0.00	1212	0.00	1321	0.00	1211

? STAAD SPACE -- PAGE NO. 30

MAX/MIN FORCE VALUES FOR MEMB 3004, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.00	0.00	1212	0.00	0.00	1212			
	0.00	3.00	1021	22.58	0.00	1001	0.00 C	3.00	1321
MIN.	0.00	3.00	1122	0.00	0.00	1122			
	-15.05	0.00	1114	0.00	3.00	1211	0.36 T	0.00	1114

4001	0.00	MAX	0.00	1112	0.00	1212	0.00	1321	0.00	1221
		MIN	0.00	1211	0.00	1022	0.00	1021	0.00	1112
	0.60	MAX	0.00	1112	0.00	1212	3.01	1114	0.90	1114
		MIN	0.00	1211	0.00	1022	1.94	1322	0.58	1322
	1.20	MAX	0.00	1112	0.00	1212	6.02	1114	3.61	1114
		MIN	0.00	1211	0.00	1021	3.87	1322	2.32	1322
	1.80	MAX	0.00	1112	0.00	1211	9.03	1114	8.13	1114
		MIN	0.00	1211	0.00	1021	5.81	1322	5.23	1322
	2.40	MAX	0.00	1112	0.00	1211	12.04	1114	14.45	1114
		MIN	0.00	1211	0.00	1021	7.74	1322	9.29	1322
	3.00	MAX	0.00	1112	0.00	1111	15.05	1114	22.58	1114
		MIN	0.00	1211	0.00	1322	9.68	1322	14.52	1322

MAX/MIN FORCE VALUES FOR MEMB 4001, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.00	0.00	1112	0.00	0.00	1212			
	15.05	3.00	1001	22.58	3.00	1001	0.00 C	0.00	1021
MIN.	0.00	3.00	1211	0.00	3.00	1322			
	0.00	0.00	1021	0.00	0.00	1112	0.36 T	3.00	1114

4002	0.00	MAX	1.61	1121	4.46	1121	8.81	1221	74.82	1121
		MIN	-0.69	1221	-4.05	1221	-31.61	1121	-45.65	1221
	1.00	MAX	1.61	1121	2.86	1321	12.03	1221	45.36	1121
		MIN	-0.69	1221	-3.37	1021	-27.31	1121	-35.22	1221
	2.00	MAX	1.61	1121	1.34	1321	15.26	1221	20.42	1321
		MIN	-0.69	1221	-2.76	1021	-23.01	1121	-21.81	1021
	3.00	MAX	1.61	1121	1.48	1212	18.48	1221	0.10	1321
		MIN	-0.69	1221	-3.39	1022	-18.71	1121	-5.48	1021
	4.00	MAX	1.61	1121	1.96	1212	22.77	1021	15.40	1221
		MIN	-0.69	1221	-4.60	1022	-15.47	1321	-17.24	1121
	5.00	MAX	1.61	1121	2.43	1212	27.07	1021	40.06	1021
		MIN	-0.69	1221	-5.81	1022	-12.24	1321	-30.85	1321

? STAAD SPACE -- PAGE NO. 31

MAX/MIN FORCE VALUES FOR MEMB 4002, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	1.61	0.00	1121	4.46	0.00	1121			
	27.07	5.00	1021	74.82	0.00	1121	6.48 C	0.00	1121
MIN.	-0.69	5.00	1221	-5.81	5.00	1022			
	-31.61	0.00	1121	-45.65	0.00	1221	15.61 T	5.00	1214

4003	0.00	MAX	0.71	1321	2.43	1212	12.24	1221	40.06	1121
		MIN	-1.62	1021	-5.81	1022	-27.06	1121	-30.84	1221
	1.00	MAX	0.71	1321	1.96	1212	15.47	1221	15.39	1321
		MIN	-1.62	1021	-4.60	1022	-22.76	1121	-17.24	1021
	2.00	MAX	0.71	1321	1.48	1212	18.71	1021	0.10	1221
		MIN	-1.62	1021	-3.39	1022	-18.48	1321	-5.48	1121
	3.00	MAX	0.71	1321	1.31	1221	23.01	1021	20.41	1221
		MIN	-1.62	1021	-2.73	1121	-15.25	1321	-21.80	1121
	4.00	MAX	0.71	1321	2.85	1221	27.31	1021	45.35	1021
		MIN	-1.62	1021	-3.36	1121	-12.03	1321	-35.22	1321
	5.00	MAX	0.71	1321	4.46	1021	31.61	1021	74.82	1021
		MIN	-1.62	1021	-4.05	1321	-8.80	1321	-45.64	1321

MAX/MIN FORCE VALUES FOR MEMB 4003, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.71	0.00	1321	4.46	5.00	1021			
	31.61	5.00	1021	74.82	5.00	1021	6.50 C	5.00	1021
MIN.	-1.62	5.00	1021	-5.81	0.00	1022			
	-27.06	0.00	1121	-45.64	5.00	1321	15.61 T	0.00	1214

4004	0.00	MAX	0.00	1111	0.00	1022	-9.68	1322	22.58	1114
		MIN	0.00	1212	0.00	1322	-15.05	1114	14.52	1322
	0.60	MAX	0.00	1111	0.00	1022	-7.74	1322	14.45	1114
		MIN	0.00	1212	0.00	1322	-12.04	1114	9.29	1322
	1.20	MAX	0.00	1111	0.00	1022	-5.81	1322	8.13	1114
		MIN	0.00	1212	0.00	1322	-9.03	1114	5.23	1322
	1.80	MAX	0.00	1111	0.00	1022	-3.87	1322	3.61	1114
		MIN	0.00	1212	0.00	1322	-6.02	1114	2.32	1322
	2.40	MAX	0.00	1111	0.00	1212	-1.94	1322	0.90	1114
		MIN	0.00	1212	0.00	1122	-3.01	1114	0.58	1322
	3.00	MAX	0.00	1111	0.00	1211	0.00	1221	0.00	1322
		MIN	0.00	1212	0.00	1022	0.00	1121	0.00	1112

? STAAD SPACE -- PAGE NO. 32

MAX/MIN FORCE VALUES FOR MEMB 4004, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.00	0.00	1111	0.00	2.40	1212			
	0.00	3.00	1221	22.58	0.00	1001	0.00 C	3.00	1221
MIN.	0.00	3.00	1212	0.00	0.00	1322			
	-15.05	0.00	1114	0.00	3.00	1112	0.36 T	0.00	1114

8001	0.00	MAX	0.40	1114	0.00	1322	0.00	1322	0.00	1322
		MIN	0.26	1322	0.00	1322	0.00	1322	0.00	1322
	1.40	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	2.79	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	4.19	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	5.58	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	6.98	MAX	-0.26	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	-0.40	1114	0.00	1322	0.00	1322	0.00	1322

MAX/MIN FORCE VALUES FOR MEMB 8001, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.40	0.00	1001	0.00	0.00	1001			
	0.00	0.00	1001	0.00	0.00	1001	5.28 T	0.00	1322
MIN.	-0.40	6.98	1114	0.00	6.98	1322			
	0.00	6.98	1322	0.00	6.98	1322	23.52 T	6.98	1012

8002	0.00	MAX	0.40	1114	0.00	1322	0.00	1322	0.00	1322
		MIN	0.26	1322	0.00	1322	0.00	1322	0.00	1322
	1.40	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	2.79	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	4.19	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	5.58	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322
	6.98	MAX	-0.26	1322	0.00	1322	0.00	1322	0.00	1322
		MIN	-0.40	1114	0.00	1322	0.00	1322	0.00	1322

? STAAD SPACE -- PAGE NO. 33

MAX/MIN FORCE VALUES FOR MEMB 8002, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD

MAX.			0.40	0.00 1001	0.00	0.00 1001					
			0.00	0.00 1001	0.00	0.00 1001		7.84 T		0.00 1221	
MIN.			-0.40	6.98 1114	0.00	6.98 1322					
			0.00	6.98 1322	0.00	6.98 1322		19.13 T		6.98 1013	
8003	0.00	MAX	0.40	1114	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.26	1322	0.00	1322	0.00	1322	0.00	1322	
	1.40	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	2.79	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	4.19	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	5.58	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	6.98	MAX	-0.26	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	-0.40	1114	0.00	1322	0.00	1322	0.00	1322	

MAX/MIN FORCE VALUES FOR MEMB 8003, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.40	0.00	1001	0.00	0.00	1001			
	0.00	0.00	1001	0.00	0.00	1001	6.40 T	6.98	1321
MIN.	-0.40	6.98	1114	0.00	6.98	1322			
	0.00	6.98	1322	0.00	6.98	1322	19.13 T	0.00	1013

8004	0.00	MAX	0.40	1114	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.26	1322	0.00	1322	0.00	1322	0.00	1322	
	1.40	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	2.79	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	4.19	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	5.58	MAX	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	0.00	1322	0.00	1322	0.00	1322	0.00	1322	
	6.98	MAX	-0.26	1322	0.00	1322	0.00	1322	0.00	1322	
		MIN	-0.40	1114	0.00	1322	0.00	1322	0.00	1322	

STAAD SPACE -- PAGE NO. 34

MAX/MIN FORCE VALUES FOR MEMB 8004, AMONGST ALL SECT LOCATIONS

	FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
MAX.	0.40	0.00	1001	0.00	0.00	1001			
	0.00	0.00	1001	0.00	0.00	1001	5.28 T	6.98	1322
MIN.	-0.40	6.98	1114	0.00	6.98	1322			
	0.00	6.98	1322	0.00	6.98	1322	23.52 T	0.00	1012

********** END OF FORCE ENVELOPE FROM INTERNAL STORAGE **********

176. LOAD LIST 2001 2002 2011 TO 2014
177. PRINT JOINT DISPLACEMENTS ALL

JOINT DISPLACE ALL

STAAD SPACE -- PAGE NO. 35

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
102	2001	0.0188	-0.8212	-0.3274	0.0008	-0.0001	0.0030
	2002	0.0189	-0.8181	-0.2838	0.0007	-0.0001	0.0031
	2011	0.0186	-0.0838	6.5045	0.0109	-0.0005	0.0031
	2012	0.0188	-0.0877	6.5666	0.0114	-0.0002	0.0031
	2013	0.0149	-0.7302	-0.4279	0.0011	-0.0002	0.0027
	2014	0.0117	-0.6250	-0.1781	0.0004	-0.0001	0.0025
104	2001	0.0245	-0.9196	0.3460	0.0016	0.0014	0.0028

	2002	0.0208	-0.7828	0.3348	0.0014	0.0013	0.0024
	2011	0.0223	-0.2747	8.2441	0.0045	0.0012	0.0019
	2012	0.0184	-0.1744	8.2544	0.0051	0.0011	0.0014
	2013	0.0319	-1.2202	0.4134	0.0020	0.0017	0.0038
	2014	0.0121	-0.3861	0.2817	0.0007	0.0011	0.0011
110	2001	0.0188	-0.8161	0.2761	-0.0009	0.0001	0.0030
	2002	0.0189	-0.8156	0.2582	-0.0008	0.0001	0.0031
	2011	0.0190	-1.5144	6.7860	0.0107	0.0001	0.0031
	2012	0.0192	-1.5289	6.8651	0.0104	-0.0001	0.0031
	2013	0.0149	-0.7251	0.3766	-0.0011	0.0002	0.0027
	2014	0.0117	-0.6200	0.1268	-0.0005	0.0000	0.0025
502	2001	-0.0188	-0.8212	-0.3274	0.0008	0.0001	-0.0030
	2002	-0.0189	-0.8181	-0.2838	0.0007	0.0001	-0.0031
	2011	-0.0186	-0.0838	6.5045	0.0109	0.0005	-0.0031
	2012	-0.0188	-0.0877	6.5666	0.0114	0.0002	-0.0031
	2013	-0.0149	-0.7302	-0.4279	0.0011	0.0002	-0.0027
	2014	-0.0117	-0.6250	-0.1781	0.0004	0.0001	-0.0025
504	2001	-0.0245	-0.9196	0.3460	0.0016	-0.0014	-0.0028
	2002	-0.0208	-0.7828	0.3348	0.0014	-0.0013	-0.0024
	2011	-0.0223	-0.2747	8.2441	0.0045	-0.0012	-0.0019
	2012	-0.0184	-0.1744	8.2544	0.0051	-0.0011	-0.0014
	2013	-0.0319	-1.2202	0.4134	0.0020	-0.0017	-0.0038
	2014	-0.0121	-0.3861	0.2817	0.0007	-0.0011	-0.0011
108	2001	0.0242	-0.9119	-0.3917	-0.0016	-0.0014	0.0028
	2002	0.0206	-0.7790	-0.3577	-0.0014	-0.0013	0.0024
	2011	0.0165	-0.7761	7.5332	0.0039	-0.0012	0.0017
	2012	0.0117	-0.6715	7.6717	0.0035	-0.0010	0.0011
	2013	0.0317	-1.2125	-0.4591	-0.0020	-0.0016	0.0038
	2014	0.0118	-0.3784	-0.3274	-0.0008	-0.0011	0.0011
508	2001	-0.0242	-0.9119	-0.3917	-0.0016	0.0014	-0.0028
	2002	-0.0206	-0.7790	-0.3577	-0.0014	0.0013	-0.0024
	2011	-0.0165	-0.7761	7.5332	0.0039	0.0012	-0.0017
	2012	-0.0117	-0.6715	7.6717	0.0035	0.0010	-0.0011
	2013	-0.0317	-1.2125	-0.4591	-0.0020	0.0016	-0.0038
	2014	-0.0118	-0.3784	-0.3274	-0.0008	0.0011	-0.0011
510	2001	-0.0188	-0.8161	0.2761	-0.0009	-0.0001	-0.0030
	2002	-0.0189	-0.8156	0.2582	-0.0008	-0.0001	-0.0031
	2011	-0.0190	-1.5144	6.7860	0.0107	-0.0001	-0.0031
	2012	-0.0192	-1.5289	6.8651	0.0104	0.0001	-0.0031
	2013	-0.0149	-0.7251	0.3766	-0.0011	-0.0002	-0.0027
	2014	-0.0117	-0.6200	0.1268	-0.0005	0.0000	-0.0025

STAAD SPACE -- PAGE NO. 36

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
201	2001	0.0000	0.0000	0.0000	-0.0014	-0.0003	-0.0005
	2002	0.0000	0.0000	0.0000	-0.0012	-0.0003	-0.0005
	2011	0.0000	0.0000	0.0000	0.0197	-0.0007	-0.0004
	2012	0.0000	0.0000	0.0000	0.0192	-0.0003	-0.0005
	2013	0.0000	0.0000	0.0000	-0.0018	-0.0001	0.0021
	2014	0.0000	0.0000	0.0000	-0.0008	0.0003	0.0045
202	2001	0.0006	-0.0558	-0.2843	0.0008	-0.0001	0.0010
	2002	0.0006	-0.0488	-0.2394	0.0007	-0.0001	0.0010
	2011	0.0006	0.6963	6.7390	0.0109	-0.0005	0.0010
	2012	0.0005	0.6943	6.7000	0.0114	-0.0002	0.0010
	2013	-0.0007	-0.0677	-0.3562	0.0011	-0.0002	0.0007
	2014	-0.0024	-0.0328	-0.1506	0.0004	-0.0001	0.0004
203	2001	-0.0405	-0.0764	-0.1778	0.0016	0.0018	0.0005
	2002	-0.0443	-0.0668	-0.1458	0.0014	0.0020	0.0006
	2011	-0.0447	0.5677	7.5226	0.0078	0.0021	0.0006
	2012	-0.0487	0.5585	7.5309	0.0083	0.0022	0.0007
	2013	-0.0329	-0.0941	-0.2202	0.0020	0.0017	0.0005
	2014	-0.0549	-0.0428	-0.0972	0.0008	0.0025	0.0011
204	2001	0.0053	-0.1770	-0.0615	0.0016	0.0014	0.0012
	2002	0.0044	-0.1544	-0.0444	0.0014	0.0013	0.0010
	2011	0.0091	0.2315	7.9229	0.0045	0.0012	0.0009
	2012	0.0087	0.1930	7.9672	0.0050	0.0011	0.0006
	2013	0.0063	-0.2231	-0.0713	0.0020	0.0017	0.0016
	2014	0.0041	-0.0912	-0.0411	0.0007	0.0011	0.0004
205	2001	0.0817	-0.2775	-0.0271	0.0010	0.0001	-0.0022
	2002	0.0781	-0.2426	-0.0141	0.0009	0.0001	-0.0021
	2011	0.0768	-0.0066	8.0056	0.0019	0.0001	-0.0019
	2012	0.0760	-0.0808	8.0630	0.0023	0.0001	-0.0020
	2013	0.0922	-0.3510	-0.0274	0.0013	0.0002	-0.0024
	2014	0.0773	-0.1375	-0.0256	0.0005	0.0001	-0.0022
206	2001	0.1084	-0.3595	-0.0257	0.0000	0.0000	-0.0029
	2002	0.1036	-0.3146	-0.0128	0.0000	0.0000	-0.0028
	2011	0.1035	-0.0816	8.0055	-0.0001	0.0000	-0.0027
	2012	0.0966	-0.1840	8.0649	-0.0001	0.0000	-0.0026

2013	0.1229	-0.4547	-0.0257	0.0000	0.0000	-0.0033
2014	0.1007	-0.1757	-0.0257	0.0000	0.0000	-0.0028
207 2001	0.0811	-0.2778	-0.0243	-0.0010	-0.0002	-0.0022
2002	0.0778	-0.2428	-0.0115	-0.0009	-0.0001	-0.0021
2011	0.0811	-0.1374	8.0006	0.0017	-0.0001	-0.0023
2012	0.0724	-0.2101	8.0621	0.0013	-0.0001	-0.0020
2013	0.0915	-0.3513	-0.0239	-0.0013	-0.0002	-0.0024
2014	0.0766	-0.1378	-0.0257	-0.0005	-0.0001	-0.0022
208 2001	0.0052	-0.1758	0.0107	-0.0016	-0.0014	0.0011
2002	0.0044	-0.1538	0.0190	-0.0014	-0.0013	0.0010
2011	0.0050	-0.3462	7.9251	0.0039	-0.0012	0.0006
2012	0.0040	-0.3869	7.9984	0.0035	-0.0010	0.0004
2013	0.0062	-0.2219	0.0205	-0.0020	-0.0016	0.0015
2014	0.0040	-0.0899	-0.0097	-0.0008	-0.0011	0.0004

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
209	2001	-0.0406	-0.0728	0.1299	-0.0016	-0.0018	0.0005
	2002	-0.0443	-0.0650	0.1219	-0.0014	-0.0020	0.0006
	2011	-0.0529	-0.6294	7.5829	0.0070	-0.0023	0.0008
	2012	-0.0561	-0.6467	7.6849	0.0066	-0.0024	0.0009
	2013	-0.0329	-0.0905	0.1723	-0.0021	-0.0017	0.0005
	2014	-0.0549	-0.0393	0.0493	-0.0008	-0.0025	0.0011
210	2001	0.0006	-0.0513	0.2421	-0.0009	0.0001	0.0010
	2002	0.0006	-0.0466	0.2182	-0.0008	0.0001	0.0010
	2011	0.0005	-0.7474	6.8400	0.0107	0.0001	0.0011
	2012	0.0004	-0.7597	6.9755	0.0104	-0.0001	0.0011
	2013	-0.0007	-0.0632	0.3139	-0.0011	0.0002	0.0007
	2014	-0.0024	-0.0283	0.1083	-0.0005	0.0000	0.0004
211	2001	0.0000	0.0000	0.0000	0.0013	0.0002	-0.0005
	2002	0.0000	0.0000	0.0000	0.0012	0.0003	-0.0005
	2011	0.0000	0.0000	0.0000	0.0199	0.0002	-0.0005
	2012	0.0000	0.0000	0.0000	0.0207	0.0001	-0.0005
	2013	0.0000	0.0000	0.0000	0.0017	0.0000	0.0021
	2014	0.0000	0.0000	0.0000	0.0006	-0.0004	0.0045
301	2001	0.0000	0.0000	0.0000	-0.0011	0.0000	0.0000
	2002	0.0000	0.0000	0.0000	-0.0009	0.0000	0.0000
	2011	0.0000	0.0000	0.0000	0.0211	0.0000	0.0000
	2012	0.0000	0.0000	0.0000	0.0198	0.0000	0.0000
	2013	0.0000	0.0000	0.0000	-0.0014	0.0000	0.0000
	2014	0.0000	0.0000	0.0000	-0.0006	0.0000	0.0000
302	2001	0.0000	-0.0426	-0.2303	0.0007	0.0000	0.0000
	2002	0.0000	-0.0359	-0.1843	0.0006	0.0000	0.0000
	2011	0.0000	0.7331	7.0452	0.0098	0.0000	0.0000
	2012	0.0000	0.7188	6.8943	0.0107	0.0000	0.0000
	2013	0.0000	-0.0511	-0.2749	0.0008	0.0000	0.0000
	2014	0.0000	-0.0281	-0.1288	0.0003	0.0000	0.0000
303	2001	0.0000	-0.0589	-0.1446	0.0012	0.0000	0.0000
	2002	0.0000	-0.0499	-0.1107	0.0011	0.0000	0.0000
	2011	0.0000	0.6195	7.7347	0.0067	0.0000	0.0000
	2012	0.0000	0.5926	7.6624	0.0077	0.0000	0.0000
	2013	0.0000	-0.0713	-0.1694	0.0015	0.0000	0.0000
	2014	0.0000	-0.0366	-0.0843	0.0006	0.0000	0.0000
304	2001	0.0000	-0.1373	-0.0534	0.0012	0.0000	0.0000
	2002	0.0000	-0.1154	-0.0345	0.0010	0.0000	0.0000
	2011	0.0000	0.3390	8.0684	0.0037	0.0000	0.0000
	2012	0.0000	0.2583	8.0614	0.0047	0.0000	0.0000
	2013	0.0000	-0.1674	-0.0579	0.0015	0.0000	0.0000
	2014	0.0000	-0.0768	-0.0376	0.0006	0.0000	0.0000
305	2001	0.0000	-0.2178	-0.0268	0.0008	0.0000	0.0000
	2002	0.0000	-0.1799	-0.0132	0.0007	0.0000	0.0000
	2011	0.0000	0.1432	8.1347	0.0016	0.0000	0.0000
	2012	0.0000	-0.0046	8.1520	0.0023	0.0000	0.0000
	2013	0.0000	-0.2626	-0.0265	0.0010	0.0000	0.0000
	2014	0.0000	-0.1162	-0.0255	0.0004	0.0000	0.0000

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
306	2001	0.0000	-0.3004	-0.0270	0.0001	0.0000	0.0000
	2002	0.0000	-0.2404	-0.0135	0.0000	0.0000	0.0000

2011	0.0000	0.0404	8.1328	0.0003	0.0000	0.0000
2012	0.0000	-0.1670	8.1539	0.0004	0.0000	0.0000
2013	0.0000	-0.3561	-0.0270	0.0001	0.0000	0.0000
2014	0.0000	-0.1652	-0.0270	0.0001	0.0000	0.0000
307 2001	0.0000	-0.2328	-0.0276	-0.0009	0.0000	0.0000
2002	0.0000	-0.1874	-0.0141	-0.0007	0.0000	0.0000
2011	0.0000	-0.0958	8.1224	0.0021	0.0000	0.0000
2012	0.0000	-0.2496	8.1470	0.0014	0.0000	0.0000
2013	0.0000	-0.2776	-0.0279	-0.0010	0.0000	0.0000
2014	0.0000	-0.1313	-0.0289	-0.0005	0.0000	0.0000
308 2001	0.0000	-0.1440	0.0019	-0.0013	0.0000	0.0000
2002	0.0000	-0.1188	0.0087	-0.0011	0.0000	0.0000
2011	0.0000	-0.3392	8.0334	0.0042	0.0000	0.0000
2012	0.0000	-0.4265	8.0822	0.0033	0.0000	0.0000
2013	0.0000	-0.1740	0.0064	-0.0016	0.0000	0.0000
2014	0.0000	-0.0834	-0.0139	-0.0007	0.0000	0.0000
309 2001	0.0000	-0.0580	0.1018	-0.0014	0.0000	0.0000
2002	0.0000	-0.0494	0.0894	-0.0011	0.0000	0.0000
2011	0.0000	-0.6346	7.6771	0.0071	0.0000	0.0000
2012	0.0000	-0.6666	7.7930	0.0061	0.0000	0.0000
2013	0.0000	-0.0704	0.1266	-0.0017	0.0000	0.0000
2014	0.0000	-0.0357	0.0416	-0.0008	0.0000	0.0000
310 2001	0.0000	-0.0399	0.1978	-0.0008	0.0000	0.0000
2002	0.0000	-0.0346	0.1680	-0.0006	0.0000	0.0000
2011	0.0000	-0.7529	6.9396	0.0105	0.0000	0.0000
2012	0.0000	-0.7719	7.1363	0.0097	0.0000	0.0000
2013	0.0000	-0.0484	0.2424	-0.0010	0.0000	0.0000
2014	0.0000	-0.0254	0.0963	-0.0005	0.0000	0.0000
311 2001	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000
2002	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000
2011	0.0000	0.0000	0.0000	0.0197	0.0000	0.0000
2012	0.0000	0.0000	0.0000	0.0212	0.0000	0.0000
2013	0.0000	0.0000	0.0000	0.0013	0.0000	0.0000
2014	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000
401 2001	0.0000	0.0000	0.0000	-0.0014	0.0003	0.0005
2002	0.0000	0.0000	0.0000	-0.0012	0.0003	0.0005
2011	0.0000	0.0000	0.0000	0.0197	0.0007	0.0004
2012	0.0000	0.0000	0.0000	0.0192	0.0003	0.0005
2013	0.0000	0.0000	0.0000	-0.0018	0.0001	-0.0021
2014	0.0000	0.0000	0.0000	-0.0008	-0.0003	-0.0045
402 2001	-0.0006	-0.0558	-0.2843	0.0008	0.0001	-0.0010
2002	-0.0006	-0.0488	-0.2394	0.0007	0.0001	-0.0010
2011	-0.0006	0.6963	6.7390	0.0109	0.0005	-0.0010
2012	-0.0005	0.6943	6.7000	0.0114	0.0002	-0.0010
2013	0.0007	-0.0677	-0.3562	0.0011	0.0002	-0.0007
2014	0.0024	-0.0328	-0.1506	0.0004	0.0001	-0.0004

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
403	2001	0.0405	-0.0764	-0.1778	0.0016	-0.0018	-0.0005
	2002	0.0443	-0.0668	-0.1458	0.0014	-0.0020	-0.0006
	2011	0.0447	0.5677	7.5226	0.0078	-0.0021	-0.0006
	2012	0.0487	0.5585	7.5309	0.0083	-0.0022	-0.0007
	2013	0.0329	-0.0941	-0.2202	0.0020	-0.0017	-0.0005
	2014	0.0549	-0.0428	-0.0972	0.0008	-0.0025	-0.0011
404	2001	-0.0053	-0.1770	-0.0615	0.0016	-0.0014	-0.0012
	2002	-0.0044	-0.1544	-0.0444	0.0014	-0.0013	-0.0010
	2011	-0.0091	0.2315	7.9229	0.0045	-0.0012	-0.0009
	2012	-0.0087	0.1930	7.9672	0.0050	-0.0011	-0.0006
	2013	-0.0063	-0.2231	-0.0713	0.0020	-0.0017	-0.0016
	2014	-0.0041	-0.0912	-0.0411	0.0007	-0.0011	-0.0004
405	2001	-0.0817	-0.2775	-0.0271	0.0010	-0.0001	0.0022
	2002	-0.0781	-0.2426	-0.0141	0.0009	-0.0001	0.0021
	2011	-0.0768	-0.0066	8.0056	0.0019	-0.0001	0.0019
	2012	-0.0760	-0.0808	8.0630	0.0023	-0.0001	0.0020
	2013	-0.0922	-0.3510	-0.0274	0.0013	-0.0002	0.0024
	2014	-0.0773	-0.1375	-0.0256	0.0005	-0.0001	0.0022
406	2001	-0.1084	-0.3595	-0.0257	0.0000	0.0000	0.0029
	2002	-0.1036	-0.3146	-0.0128	0.0000	0.0000	0.0028
	2011	-0.1035	-0.0816	8.0055	-0.0001	0.0000	0.0027
	2012	-0.0966	-0.1840	8.0649	-0.0001	0.0000	0.0026
	2013	-0.1229	-0.4547	-0.0257	0.0000	0.0000	0.0033
	2014	-0.1007	-0.1757	-0.0257	0.0000	0.0000	0.0028
407	2001	-0.0811	-0.2778	-0.0243	-0.0010	0.0002	0.0022
	2002	-0.0778	-0.2428	-0.0115	-0.0009	0.0001	0.0021
	2011	-0.0811	-0.1374	8.0006	0.0017	0.0001	0.0023
	2012	-0.0724	-0.2101	8.0621	0.0013	0.0001	0.0020
	2013	-0.0915	-0.3513	-0.0239	-0.0013	0.0002	0.0024

	2014	-0.0766	-0.1378	-0.0257	-0.0005	0.0001	0.0022
408	2001	-0.0052	-0.1758	0.0107	-0.0016	0.0014	-0.0011
	2002	-0.0044	-0.1538	0.0190	-0.0014	0.0013	-0.0010
	2011	-0.0050	-0.3462	7.9251	0.0039	0.0012	-0.0006
	2012	-0.0040	-0.3869	7.9984	0.0035	0.0010	-0.0004
	2013	-0.0062	-0.2219	0.0205	-0.0020	0.0016	-0.0015
	2014	-0.0040	-0.0899	-0.0097	-0.0008	0.0011	-0.0004
409	2001	0.0406	-0.0728	0.1299	-0.0016	0.0018	-0.0005
	2002	0.0443	-0.0650	0.1219	-0.0014	0.0020	-0.0006
	2011	0.0529	-0.6294	7.5829	0.0070	0.0023	-0.0008
	2012	0.0561	-0.6467	7.6849	0.0066	0.0024	-0.0009
	2013	0.0329	-0.0905	0.1723	-0.0021	0.0017	-0.0005
	2014	0.0549	-0.0393	0.0493	-0.0008	0.0025	-0.0011
410	2001	-0.0006	-0.0513	0.2421	-0.0009	-0.0001	-0.0010
	2002	-0.0006	-0.0466	0.2182	-0.0008	-0.0001	-0.0010
	2011	-0.0005	-0.7474	6.8400	0.0107	-0.0001	-0.0011
	2012	-0.0004	-0.7597	6.9755	0.0104	0.0001	-0.0011
	2013	0.0007	-0.0632	0.3139	-0.0011	-0.0002	-0.0007
	2014	0.0024	-0.0283	0.1083	-0.0005	0.0000	-0.0004

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = SPACE

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
411	2001	0.0000	0.0000	0.0000	0.0013	-0.0002	0.0005
	2002	0.0000	0.0000	0.0000	0.0012	-0.0003	0.0005
	2011	0.0000	0.0000	0.0000	0.0199	-0.0002	0.0005
	2012	0.0000	0.0000	0.0000	0.0207	-0.0001	0.0005
	2013	0.0000	0.0000	0.0000	0.0017	0.0000	-0.0021
	2014	0.0000	0.0000	0.0000	0.0006	0.0004	-0.0045

********** END OF LATEST ANALYSIS RESULT **********

178. PARAMETER 1
179. CODE BS5950
180. PY 345000 ALL
181. CHECK CODE ALL
STEEL DESIGN

STAAD.Pro CODE CHECKING - (BSI)
****

PROGRAM CODE REVISION V2.9_5950-1_2000

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
201	TAPERED	PASS 61.56 C	BS-4.7 (C) 3.76	0.355 18.03	2013 4.08
202	TAPERED	PASS 0.02 T	BS-4.8.2.2 -1.82	0.347 -45.85	2011 0.00
203	TAPERED	PASS 6.15 T	BS-4.8.2.2 -1.44	0.367 50.49	2012 0.85
204	TAPERED	PASS 2.95 C	BS-4.7 (C) 0.06	0.320 -50.52	2012 0.00
205	TAPERED	PASS 8.68 C	BS-4.7 (C) 0.06	0.220 -33.74	2012 0.00
206	TAPERED	PASS 15.45 C	BS-4.7 (C) -0.07	0.193 -28.53	2011 1.63
207	TAPERED	PASS 20.26 C	BS-4.7 (C) -0.06	0.264 -39.42	2011 0.85
208	TAPERED	PASS 32.44 C	BS-4.7 (C) 0.04	0.375 -55.96	2011 0.85
209	TAPERED	PASS 33.78 C	BS-4.7 (C) 1.16	0.430 -58.60	2012 0.85
210	TAPERED	PASS 54.66 C	BS-4.7 (C) -0.73	0.496 -58.63	2012 0.00
301	TAPERED	PASS 13.80 C	BS-4.3.6 0.00	0.355 48.84	2011 3.85

302	TAPERED	PASS 21.25 C	BS-4.3.6 0.00	0.306 10.97	2001 0.14
303	TAPERED	PASS 2.62 C	BS-4.7 (C) 0.00	0.294 -46.78	2011 0.00
304	TAPERED	PASS 14.61 C	BS-4.7 (C) 0.00	0.283 -43.55	2012 0.00
305	TAPERED	PASS 19.64 C	BS-4.7 (C) 0.00	0.186 -27.22	2012 0.00
306	TAPERED	PASS 28.97 C	BS-4.7 (C) 0.00	0.198 -27.98	2011 1.64
307	TAPERED	PASS 33.29 C	BS-4.7 (C) 0.00	0.249 -35.85	2011 0.85
308	TAPERED	PASS 26.84 C	BS-4.7 (C) 0.00	0.341 -51.32	2011 0.85
309	TAPERED	PASS 29.03 C	BS-4.7 (C) 0.00	0.379 -57.20	2012 0.85
310	TAPERED	PASS 42.92 C	BS-4.7 (C) 0.00	0.444 -57.12	2012 0.00
401	TAPERED	PASS 61.56 C	BS-4.7 (C) -3.76	0.355 18.03	2013 4.08
402	TAPERED	PASS 0.02 T	BS-4.8.2.2 1.82	0.347 -45.85	2011 0.00
403	TAPERED	PASS 6.15 T	BS-4.8.2.2 1.44	0.367 50.49	2012 0.85
404	TAPERED	PASS 2.95 C	BS-4.7 (C) -0.06	0.320 -50.52	2012 0.00

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
405	TAPERED	PASS 8.68 C	BS-4.7 (C) -0.06	0.220 -33.74	2012 0.00
406	TAPERED	PASS 15.45 C	BS-4.7 (C) 0.07	0.193 -28.53	2011 1.63
407	TAPERED	PASS 20.26 C	BS-4.7 (C) 0.06	0.264 -39.42	2011 0.85
408	TAPERED	PASS 32.44 C	BS-4.7 (C) -0.04	0.375 -55.96	2011 0.85
409	TAPERED	PASS 33.78 C	BS-4.7 (C) -1.16	0.430 -58.60	2012 0.85
410	TAPERED	PASS 54.66 C	BS-4.7 (C) 0.73	0.496 -58.63	2012 0.00
1001	TAPERED	PASS 0.47 T	BS-4.3.6 0.00	0.189 28.88	2013 3.00
1002	TAPERED	PASS 8.69 C	BS-4.7 (C) 1.21	0.234 27.33	2013 0.00
1003	TAPERED	PASS 8.69 C	BS-4.7 (C) -1.21	0.234 -27.33	2013 5.00
1004	TAPERED	PASS 0.47 T	BS-4.3.6 0.00	0.189 28.88	2013 0.00
2001	TAPERED	PASS 0.47 T	BS-4.3.6 0.00	0.189 28.88	2013 3.00
2002	TAPERED	PASS 8.87 C	BS-4.7 (C) -1.19	0.234 27.35	2013 0.00
2003	TAPERED	PASS 8.87 C	BS-4.7 (C) 1.19	0.234 -27.35	2013 5.00
2004	TAPERED	PASS 0.47 T	BS-4.3.6 0.00	0.189 28.88	2013 0.00
3001	TAPERED	PASS 0.26 T	BS-4.8.2.2 -16.13	0.100 0.00	2001 3.00
3002	TAPERED	PASS 1.83 C	BS-4.7 (C) 13.95	0.088 -0.19	2012 0.00
3003	TAPERED	PASS 1.83 C	BS-4.7 (C) -13.95	0.088 0.19	2012 5.00
3004	TAPERED	PASS 0.26 T	BS-4.8.2.2 16.13	0.100 0.00	2001 0.00
4001	TAPERED	PASS 0.26 T	BS-4.8.2.2 -16.13	0.100 0.00	2001 3.00
4002	TAPERED	PASS 1.40 C	BS-4.7 (C) 14.26	0.089 0.13	2012 0.00
4003	TAPERED	PASS 1.40 C	BS-4.7 (C) -14.26	0.089 -0.13	2012 5.00
4004	TAPERED	PASS 0.26 T	BS-4.8.2.2 16.13	0.100 0.00	2001 0.00
8001	ST UA90X90X6	PASS 19.60 T	BS-4.6 (T) 0.00	0.054 0.00	2012 6.98

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
8002	ST UA90X90X6	PASS 15.94 T	BS-4.6 (T) 0.00	0.044 0.00	2013 6.98
8003	ST UA90X90X6	PASS 15.94 T	BS-4.6 (T) 0.00	0.044 0.00	2013 0.00
8004	ST UA90X90X6	PASS 19.60 T	BS-4.6 (T) 0.00	0.054 0.00	2012 0.00

********** END OF TABULATED RESULT OF DESIGN **********

182. STEEL TAKE OFF ALL

STAAD SPACE -- PAGE NO. 44

STEEL TAKE OFF

STEEL TAKE-OFF

PROFILE		LENGTH(METE)	WEIGHT(KN)
ISECT: TAPERED	201	81.77	25.779
ISECT: TAPERED	3001	32.01	25.081
ST UA90X90X6		27.92	2.274
		TOTAL =	53.134

********** END OF DATA FROM INTERNAL STORAGE **********

183. FINISH

********** END OF THE STAAD.Pro RUN **********

**** DATE= APR 28,2007 TIME= 15:20:42 ****

2 FOUNDATION DESIGN CHECK

Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site	Main Depot Rashidiya - Building 24 Footing Summary	Date	Apr '07	Job No.	068010
		Designed by	Rudy	Sheet No.	

Soil Bearing Pressure	=	150	kN/m^2
Soil Density	=	20	kN/m^3
Concrete Density	=	24	kN/m^3
Footing Depth below slab soffit	=	1	m
Column Stump Area	=	0.25	m^2

Individual Footing

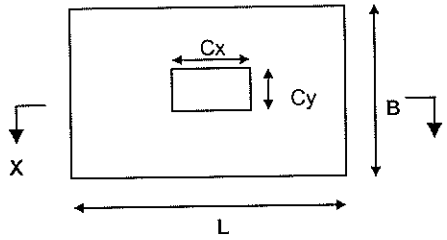
Column	Column Reaction (ULS)	Soil Load (kN)	Footing Load (kN)	Total SLS Load (kN)	ULS Load (kN)	Footing size			Area of Footing (m^2)	Soil Pressure (kN/m^2)	Factor	Remarks
						L (m)	B (m)	H (m)				
201	85	34.2	28.224	133	172	1.400	1.400	0.600	1.96	68	2.21	OK

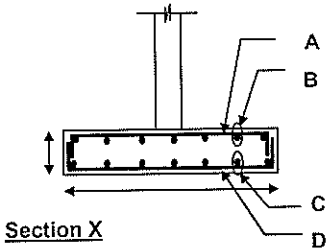
Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site	Main Depot Rashidiya - Building 24 Footing Detail	Date	Apr '07	Job No.	068010
		Designed by	Rudy	Sheet No.	

Summary





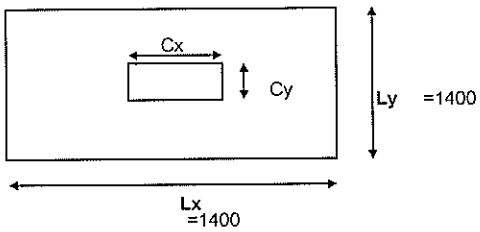
Footing Type	L	B	H	Soil Bearing pressure (kPa)	A	Spacing (mm)	B	Spacing (mm)	C	Spacing (mm)	D	Spacing (mm)
F3	1400	1400	600	150	10T12	143	10T12	143	10T16	143	10T16	143

Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site	Main Depot Rashidiya - Building 24	Date	Apr '07	Job No.	068010.01
	Footing F3				
	For soil bearing pressure = 150kPa	Designed by	Rudy	Sheet No.	

REINFORCED CONCRETE FOOTING DESIGN TO BS8110



1. *Material Properties*

Concrete grade	f_{cu}	=	35	N/mm²
Steel grade	f_y	=	460	N/mm²
Concrete density	γ_c	=	24	KN/m³
Steel density	γ_s	=	78	KN/m³

2. *Design Data*

Depth of Footing	h	=	600	mm
Width of Footing	L_y	=	1400	mm
Length of Footing	L_x	=	1400	mm
Width of Column	C_y	=	450	mm
Length of Column	C_x	=	450	mm
Concrete Ten. Cover	c	=	50	mm
Concrete Comp. Cover	c	=	50	mm
Tension bar dia. (x-dir)	D_x	=	16	mm
Tension bar dia. (y-dir)	D_y	=	16	mm
Comp. bar diameter (x-dir)	D_c	=	12	mm
Comp. bar diameter (y-dir)	D_c	=	12	mm
Effect.depth (x-dir)	d_x	=	542	mm
Effect.depth (y-dir)	d_y	=	526	mm
Area of footing	A	=	1.96	m²

3. *Loadings*

Safe bearing pressure	p_b	=	150	KN/m
Load factor	f	=	1.5	
Total axial load (SLS)	N	=	294.00	kN
Eccentricity	e	=	0	mm

4. *Analysis*

Net pressure (SLS)	p_{max}	=	135.60	KN/m					
Net pressure (ULS)	p_{max}	=	203.4	KN/m					
Shear force (x-dir)	V_x	=	135.26	kN					
Shear force (y-dir)	V_y	=	135.26	kN					
Moment (x-dir)	M_x	=	32.12	kNm					
Moment (y-dir)	M_y	=	32.12	kNm					
Steel required (x-dir)	A_{sreq}	=	1092	mm²		Nos	ϕ	Spacing	
Steel provided (x-dir)	A_{sprov}	=	2011	mm²	O.K.	10	16	143	x-dir
Steel required (y-dir)	A_{sreq}	=	1092	mm²		Nos	ϕ		
Steel provided (y-dir)	A_{sprov}	=	2011	mm²	O.K.	10	16	143	y-dir
Top bars required (x-dir)	A'_{sreq}	=	1092	mm²		Nos	ϕ		
Top bars provided (x-dir)	A'_{sprov}	=	1131	mm²	O.K.	10	12	143	x-dir
Top bars required (y-dir)	A'_{sreq}	=	1092	mm²		Nos	ϕ		
Top bars provided (y-dir)	A'_{sprov}	=	1131	mm²	O.K.	10	12	143	y-dir

Site	Main Depot Rashidiya - Building 24 Footing F3 For soil bearing pressure = 150kPa	Date	Apr '07	Job No. 068010.01
		Designed by	Rudy	Sheet No.

5. ***Shear Check***

Checking for punching shear:

Shear force at face V_f = 395.44 kN

Shear stress at face v_f = 0.41 N/mm² O.K.

Distance from Support (mm)	av (mm)	V (kN)	v (N/mm²)	v_c (N/mm²)	Enhanced v_c (N/mm²)	Remarks
d	542	0.00	0.00	0.45	0.91	No Shear Links
2d	1084	0.00	0.00	0.45	0.45	No Shear Links

Checking for shear (x-dir):

Shear force at face (x-dir) V_c = 149.63 kN

Shear stress at face (x-dir) v_c = 0.20 N/mm² O.K.

Distance from Support (mm)	av (mm)	V (kN)	v (N/mm²)	v_c (N/mm²)	Enhanced v_c (N/mm²)	Remarks
d	542	0.00	0.00	0.45	0.91	No Shear Links
2d	1084	0.00	0.00	0.45	0.45	No Shear Links

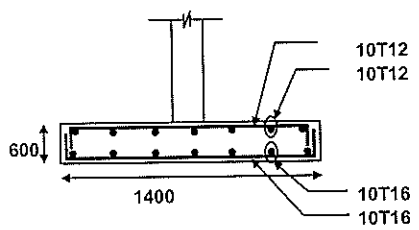
Checking for shear (y-dir):

Shear force at face (y-dir) V_c = 149.63 kN

Shear stress at face (y-dir) v_c = 0.20 N/mm² O.K.

Distance from Support (mm)	av (mm)	V (kN)	v (N/mm²)	v_c (N/mm²)	Enhanced v_c (N/mm²)	Remarks
d	526	0.00	0.00	0.46	0.92	No Shear Links
2d	1052	0.00	0.00	0.46	0.46	No Shear Links

6. ***Detailing***

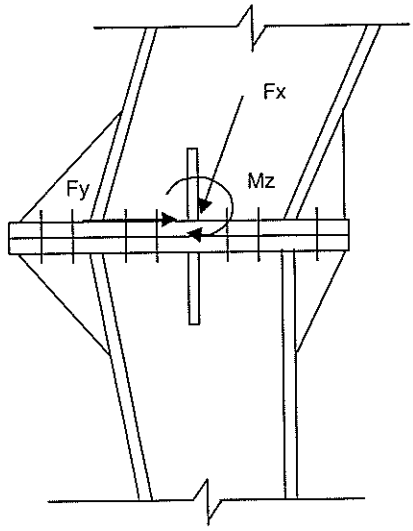


3 CONNECTIONS DESIGN

Column Splice Connection Design

From the STAAD Pro analysis

Fxc =	47	kN (compression)
Fxt =	22	kN (tension)
Fy =	20	kN
Mz =	75	kNm



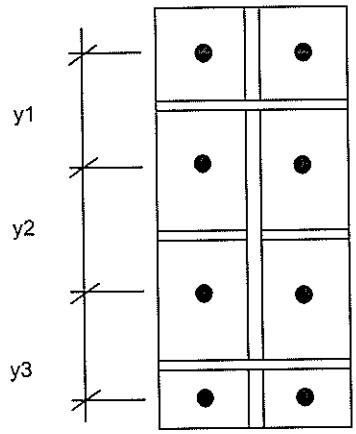
Total Tension
T = (n*Tb/d)*[(d-a)+(d-y1-a)+(d-y2-a) + ...]
where n = no of row of bolts and Tb is bolt tension capacity

Total Compression
= 0.5a*pc*b
where b = stiff bearing length
= web thickness + 2*plate thickness

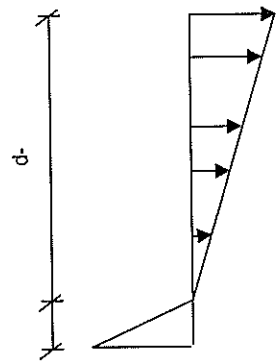
Moment Capacity
$Mc = [nTb/(d-a)] * [(d-a)^2 + (d-a-y1)^2 + (d-a-ys)^2 + ...]$

For Gr 8.8 bolt

Bolt size	=	20 mm
Tb	=	110 kN
Vb	=	91.9 kN
n	=	2
n total	=	12
web, tw	=	8 mm
plate, tp	=	10 mm
b	=	28 mm



y1	127	Trial a	=	84 mm
y2	147	T	=	381.6 kN
y3	127	C	=	381.6 kN
y4	0	T-C	=	0.00 kN
y5	0	Mc	=	95.8 kNm
y6	0			
Depth, d	400			



Tension force on the bolt, T1 = (Mz/Mc)*Tb
= 86 kN

[T1 + (Fxt/n total)] / Tb + Fy/(n total*Vb) = 0.82
< 1.4 Ok

pc = 325 N/mm2

Check the effective weld length on the stiffener plate to resist bolt's tension

Weld size, s =	6 mm	(up to 15mm thick)
Weld strength, pw =	1.05 kN/mm	(based on longitudinal capacity)
Weld length required =	(T1 + 0.5*Fxt) / pw	
=	92 mm	
=	46 mm per face	

Calculation/Sketch

Meinhardt Infrastructure Pte Ltd
Consulting Engineers, Planners & Managers

Site	Dubai Depot Electrical Store	Date	Apr '07	Job No.	068010
		Designed by	Rudy	Sheet No.	

From the plate analysis (refer attached) using
Prying Force, To = 10 kN

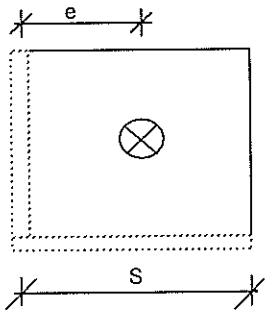


Plate width, So (mm)	Ave. support bending moment, Mo (kNm)
75	0.020
100	0.027
125	0.035
150	0.040

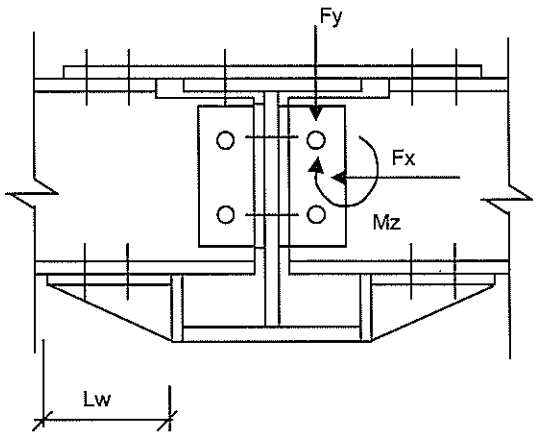
Actual -	Prying force, T	=	79 kN
	Side, S	=	75 mm
	Bending Moment, M	=	(T/To)*Mo
		=	0.160 kNm
	Bolt Diameter, ϕ	=	20 mm
	Bolt distance, e	=	36 mm
	Thickness of plate, tp	=	10 mm
	py allow	=	355 N/mm^2

Effective width of the plate resisting the bending moment, bp = min (2e+ϕ, S)
= 75 mm

Section of modulus of the plate, Zp = $bp*tp^2 / 6$
= 1250 mm^2

M / Zp = 128 N/mm^2 Ok

Secondary Beam Connection Design



Roof SDL	=	0.8 kN/m^2
Self weight	=	0.5 kN/m^2
WL	=	0.6 kN/m^2 (downward)
WL	=	0.6 kN/m^2 (downward)
	=	1.4 kN/m^2 (upward)

wuls	-	1.4*DL+1.6LL	=	2.78 kN/m^2
	-	1.2*(DL+LL+WL)	=	3.00 kN/m^2
	-	1.4WL - DL	=	0.66 kN/m^2

loading width, s = 3.8 m

For internal span (simply supported span)
- top and bottom plate not required

max span, L = 8 m

Axial load for earthquake, Pa = (11.5+11.5)*(7.1) / 12 rows of secondary beams / tie beams
= 13.6 kN

Vmax = 0.5*wuls*L*s
Downward forces = 45.6 kN
Upward forces = 10.0 kN

Bolt diameter, ϕ = 16 mm
Shear capacity, Vb = 58.9 kN
Bolt tensile capacity, Tb = 70.7 kN

Check shear on bolt connected to secondary beam's web

No of bolt, n = 2
Vmax / n = 22.8 kN
Pa / n = 6.8 kN
Resultant shear, V = 23.8 kN Ok

Check tensile capacity of bolt connected to main beam's web

Eccentricity of load, e = 60 mm
Moment due to eccentricity, Me = Vmax*e
= 2.736 kNm
Spacing between bolt, db = 150 mm

Tensile force on the bolt, T = Me/db
= 18.2 kN Ok

For the cantilever end
- Assume shear due to bending is resisted by top and bottom bolt
- Assume vertical and horizontal shear is resisted by bolt on the web

Span length, L	=	4 m
Mmax	=	0.5*wuls*L^2*s
Downward	=	91.2 kNm
Upward	=	20.1 kNm
Vmax	=	wuls*L*s
Downward	=	45.6 kN
Upward	=	10.0 kN

Check bolts on the flanges

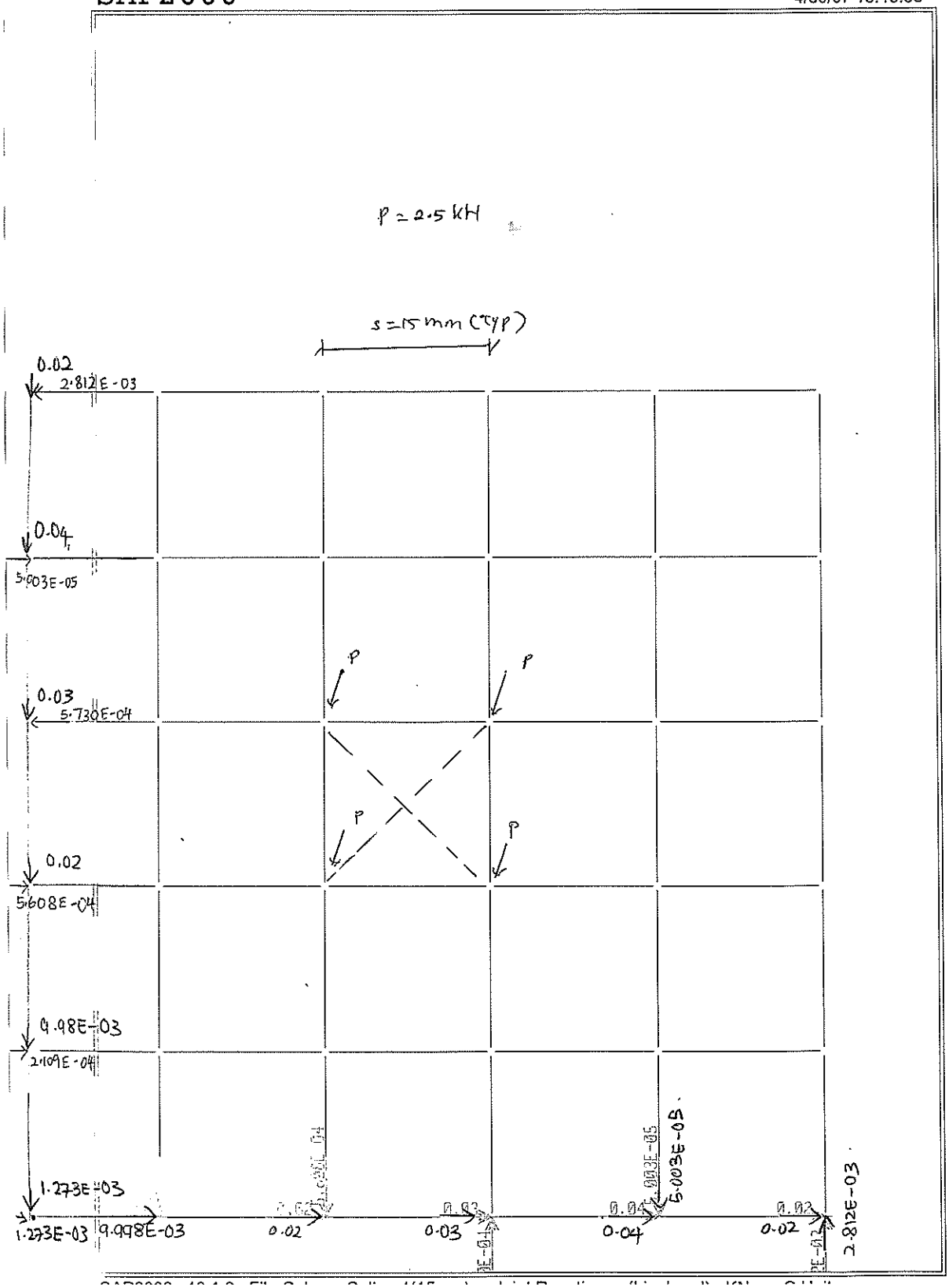
Beam depth - flange thickness, Df	=	292 mm
Mmax bending moment (incl. moment due to ecc), Me	=	93.9 kNm
Shear on the flange, Vf	=	Me / Df
	=	321.7 kN
No of bolt provided	=	4
Shear per bolt	=	80.4 kN
Bolt diameter, ϕ	=	20 mm
Shear capacity, Vb	=	91.9 kN

Check shear on the web
- for the secondary beam web

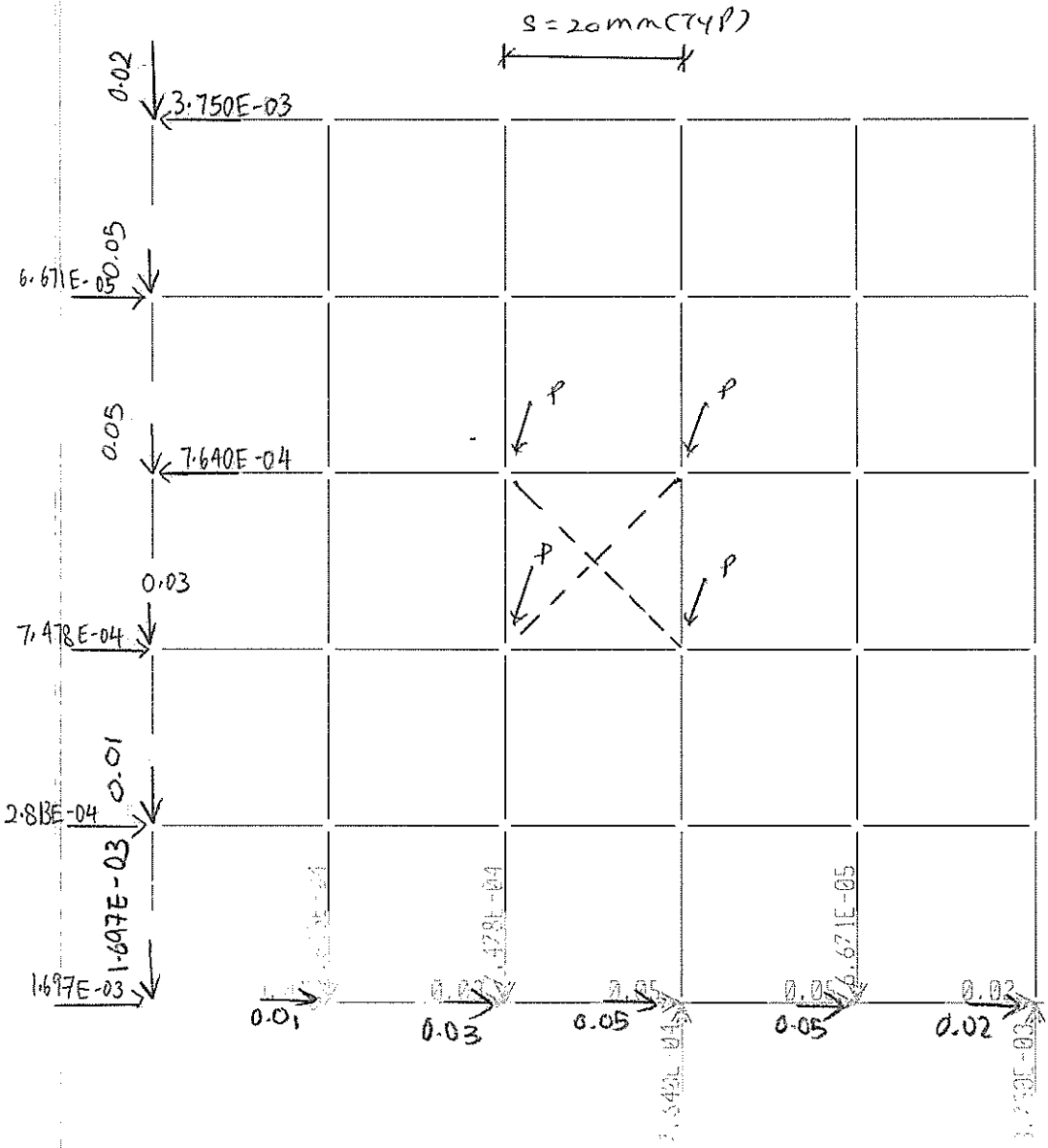
No of bolt provided	=	2
Shear per bolt	=	22.8 kN
Bolt diameter, ϕ	=	16 mm
Shear capacity, Vb	=	58.9 kN

- for the main beam web

No of bolt provided	=	2
Distance between bolt	=	150 mm
Tensile load per bolt	=	18.2 kN
Bolt diameter, ϕ	=	16 mm
Tensile capacity, Vb	=	70.7 kN

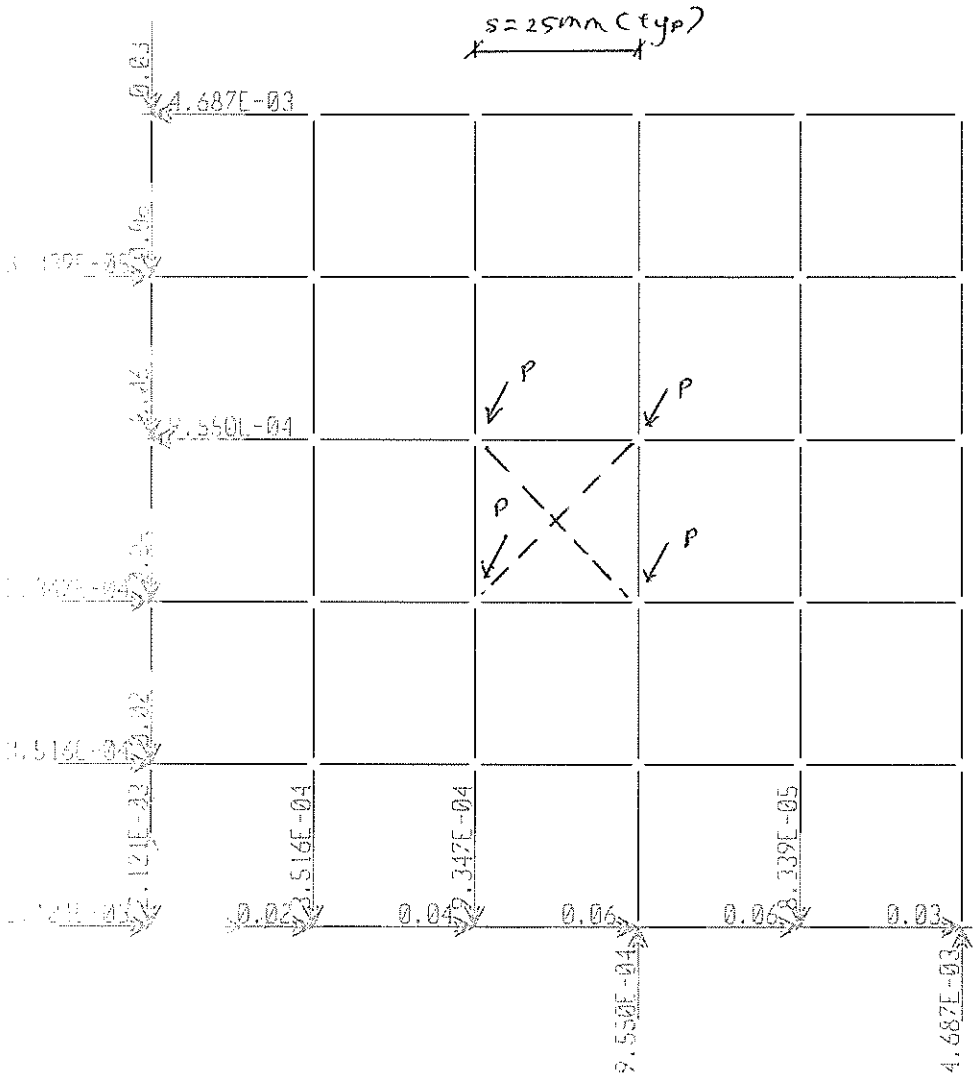


Bolt Prying Action on Splice Plate
(Plate Width = 75 mm)



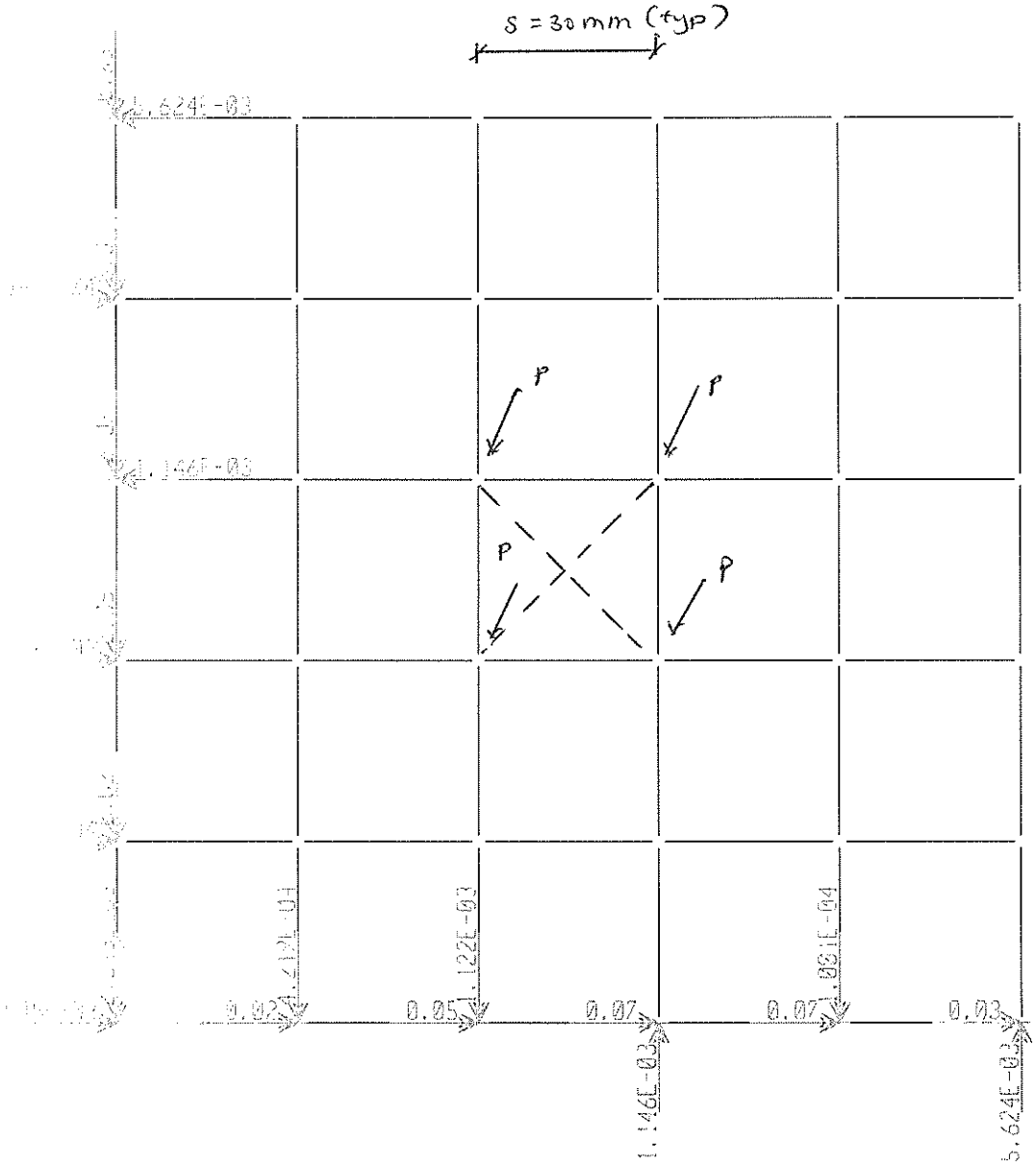
P = 2.5 KN

BOLT PRYING ACTION ON SPLICE PLATE
(PLATE WIDTH = 100mm)



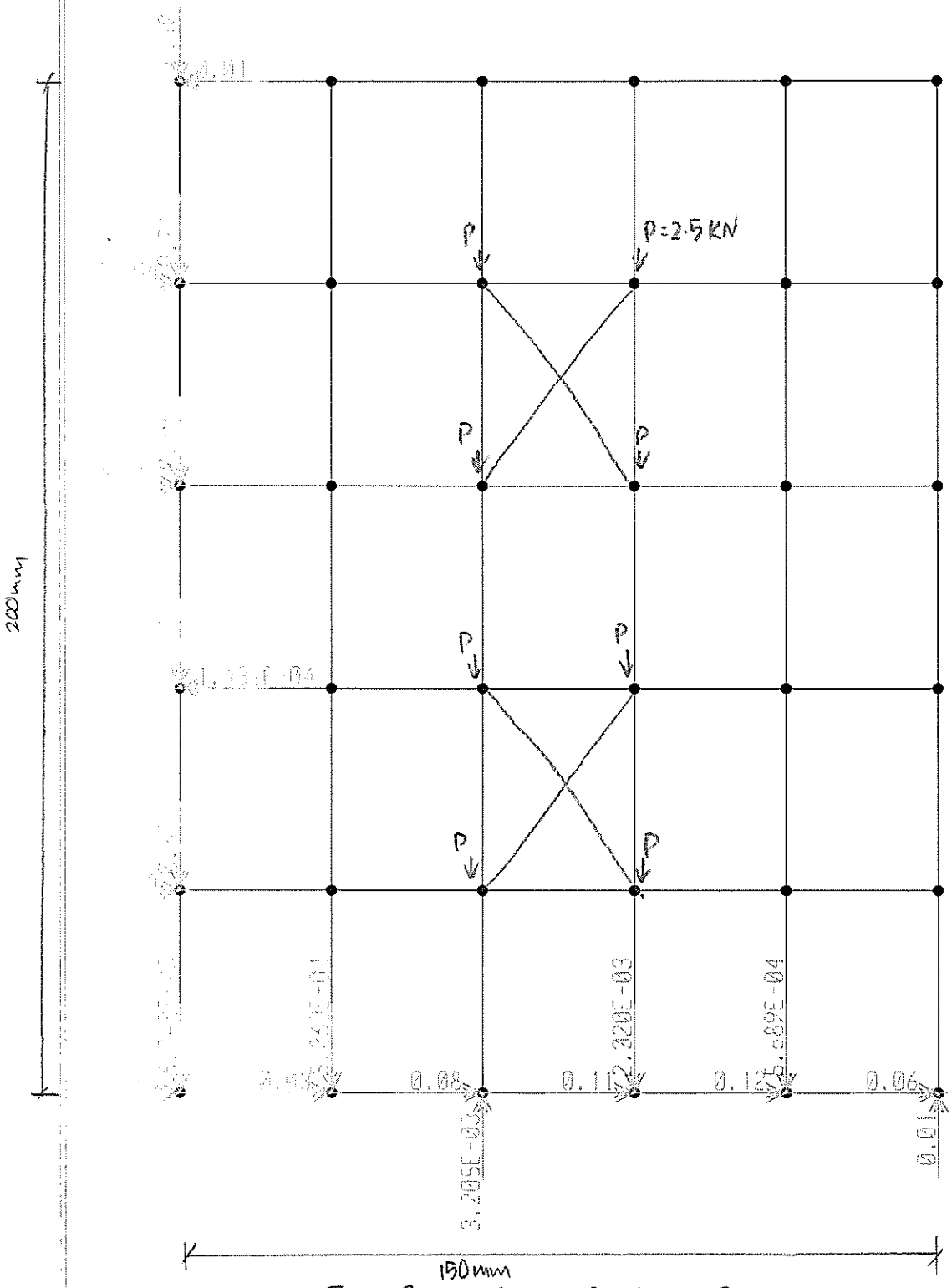
P = 2.5 kN

BOLT PRYING ACTION ON SPLICE PLATE
(PLATE WIDTH = 125mm)



P = 2.5 kN

BOLT PRYING ACTION ON SPLICE PLATE
(PLATE WIDTH = 150mm)



BOLT PRYING ACTION ON SPLICE PLATE
(150mm × 200mm PLATE)

SAP2000 v10.1.2 - File:Column Splice-5(0.15x0.2) - Joint Reactions (LiveLoad) - KN, m, C Units