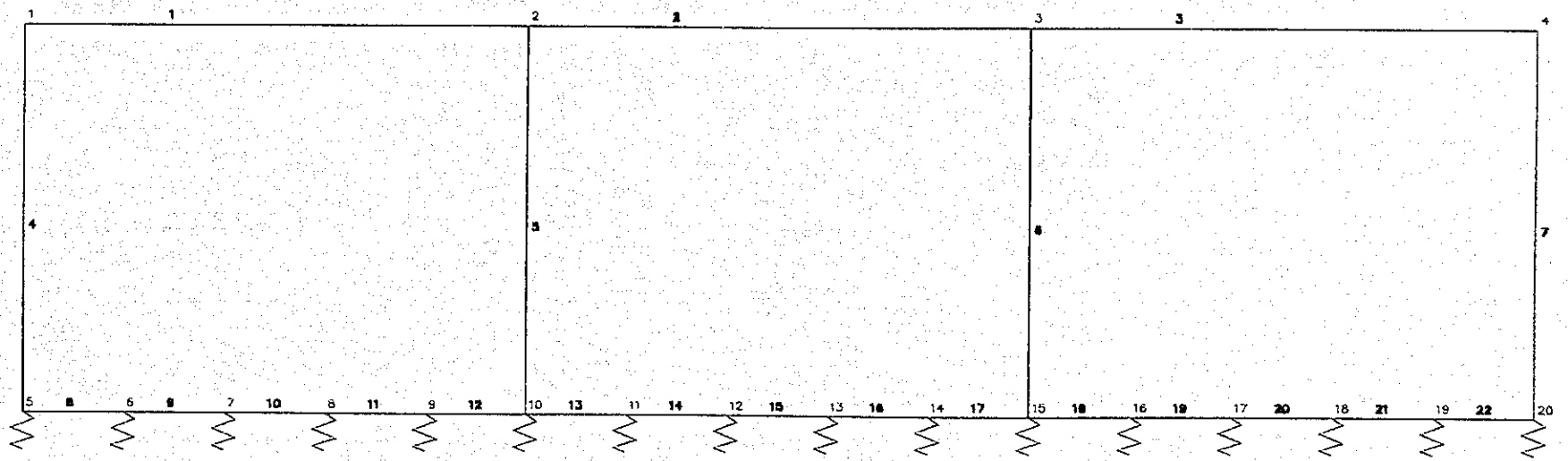
## 2-1-2 BOX CULVERT AT CH.3+760

### (1) BOX CULVERT

# BOX CULVERT AT CH. 2+760




2 = JOINT NUMBER
**4 = MEMBER NUMBER**

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 ****************************************************
 *                                                  *
 *          S T A A D - III                         *
 *          Revision 22.3a                          *
 *          Proprietary Program of                  *
 *          Research Engineers, Inc.                *
 *          Date=    JAN 30, 2000                   *
 *          Time=    10:19:34                       *
 *                                                  *
 *      USER ID: Development Design Consultants L   *
 ****************************************************
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```
 1. STAAD PLANE DESIGN OF BOX CULVERT AT CH. 2+760 (3 X 2.5 X 2.0)
 2. UNIT METER KNS
 3. PAGE EJE
 4. JOINT COORD
 5.  1  0.00  2.25  0.00
 6.  2  2.83  2.25  0.00
 7.  3  5.65  2.25  0.00
 8.  4  8.48  2.25  0.00
 9.  5  0.00  0.00  0.00    10    2.83  0.00  0.00
10. 11  3.39  0.00  0.00    15    5.65  0.00  0.00
11. 16  6.22  0.00  0.00    20    8.48  0.00  0.00
12. MEMBER INCI
13.   1     1     2     3
14.   4     1     5
15.   5     2    10
16.   6     3    15
17.   7     4    20
18.   8     5     6    22
19. MEMBER PROPERTY
20. 1 TO 3   PRIS    YD     0.250 ZD 1.0
21. 4  7     PRIS    YD     0.250 ZD 1.0
22. 5  6     PRIS    YD     0.250 ZD 1.0
23. 8 TO 22  PRIS    YD     0.250 ZD 1.0
24. CONSTANT
25. E 23.667E6 ALL
26. DENSITY 23.56 ALL
27. SUPPORT
28. *6 TO 19 FIXED BUT MZ  FX  KFY   1131
29. *5  20   FIXED BUT MZ  FX  KFY    565
30. *
31. 8 TO 17          FIXED BUT MZ  FX  KFY  1131
32. 5 6 7 18 19 20   FIXED BUT MZ  FX  KFY  2000
33. *
34. LOAD  1  : SELFWEIGHT
35. SELFWEIGHT  Y  -1
36. LOAD  2  : FILL WEIGHT
37. MEMBER LOAD
38. 1  TO  3  UNI    GY    -16.87
39. LOAD  3  : BACK FILL (MINIMUM)
40. MEMBER LOAD
41.  4 TRAP    GX     4.82  15.45
42.  7 TRAP    GX    -4.82 -15.45
43. LOAD  4  : BACK FILL (MAXIMUM)
44. MEMBER LOAD
45.  4 TRAP    GX    13.47  17.49  0.00  0.43
46.  4 TRAP    GX    17.49  40.48  0.43  2.25
47.  7 TRAP    GX   -13.47 -17.49  0.00  0.43
48.  7 TRAP    GX   -17.49 -40.48  0.43  2.25
49. LOAD 5   : LL IN ADJACENT SPANS
50. MEMBER LOAD
51.  1 UNI     GY   -42.42   0.63  2.20
52.  2 UNI     GY   -42.42   2.07  2.83
53. LOAD 6   : LL IN ALTERNATE SPAN
54. MEMBER LOAD
55.  1 UNI     GY   -42.42   0.63  2.20
56.  3 UNI     GY   -42.42   0.00  2.83
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 57. LOAD 7    : LL IN SPAN 1
 58. MEMBER LOAD
 59.  1 UNI      GY    -42.42    0.63  2.20
 60. LOAD 8    : LL IN SPAN 2
 61. MEMBER LOAD
 62.  2 UNI      GY    -42.42    0.63  2.20
 63. LOAD 9    : MILITARY LOADING IN SPAN 1
 64. MEMBER LOAD
 65.  1 UNI      GY    -29.35    0.02  1.41
 66.  1 UNI      GY    -29.35    1.41  2.81
 67. LOAD 10   : MILITARY LOADING IN SPAN 2
 68. MEMBER LOAD
 69.  2 UNI      GY    -29.35    0.02  1.41
 70.  2 UNI      GY    -29.35    1.41  2.81
 71. LOAD 11   : LL IN SPAN 1 FOR MAX. SHEAR
 72. MEMBER LOAD
 73.  1 UNI      GY    -42.42    0.00  1.57
 74. LOAD 12   : MILITARY LOADING IN SPAN 1 FOR MAX. SHEAR
 75. MEMBER LOAD
 76.  1 UNI      GY    -29.35    0.00  1.39
 77.  1 UNI      GY    -29.35    1.39  2.79
 78. *
 79. LOAD COMB 13
 80. 1  1.3  2  1.3  4  1.3  11  2.171
 81. LOAD COMB 14
 82. 1  1.3  2  1.3  4  1.3  12  2.171
 83. *
 84. LOAD COMB 15
 85. 1  1.3  2  1.3  4  1.3  5  2.171
 86. LOAD COMB 16
 87. 1  1.3  2  1.3  4  1.3  6  2.171
 88. LOAD COMB 17
 89. 1  1.3  2  1.3  4  1.3  7  2.171
 90. LOAD COMB 18
 91. 1  1.3  2  1.3  4  1.3  8  2.171
 92. LOAD COMB 19
 93. 1  1.3  2  1.3  4  1.3  9  2.171
 94. LOAD COMB 20
 95. 1  1.3  2  1.3  4  1.3  10  2.171
 96. *
 97. LOAD COMB 21
 98. 1  1.3  2  1.3  3  1.3  5  2.171
 99. LOAD COMB 22
100. 1  1.3  2  1.3  3  1.3  6  2.171
101. LOAD COMB 23
102. 1  1.3  2  1.3  3  1.3  7  2.171
103. LOAD COMB 24
104. 1  1.3  2  1.3  3  1.3  8  2.171
105. LOAD COMB 25
106. 1  1.3  2  1.3  3  1.3  9  2.171
107. LOAD COMB 26
108. 1  1.3  2  1.3  3  1.3  10  2.171
109. LOAD COMB 27
110. 1  1.3   4  1.3
111. *
112. 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 =    20/   22/   16
 ORIGINAL/FINAL BAND-WIDTH =   16/    4
 TOTAL PRIMARY LOAD CASES  =   12, TOTAL DEGREES OF FREEDOM =    60
 SIZE OF STIFFNESS MATRIX =     900 DOUBLE PREC. WORDS
 REQRD/AVAIL. DISK SPACE =  12.06/  224.0 MB,  EXMEM = 1960.5 MB
```

```
**WARNING** LOAD BEYOND ITS LENGTH. FULL LENGTH ASSUMED. MEMB      2

++ Processing Element Stiffness Matrix.                  10:19:34
++ Processing Global Stiffness Matrix.                   10:19:34
++ Processing Triangular Factorization.                  10:19:34

 ***WARNING - IMPROPER LOAD WILL CAUSE INSTABILITY AT JOINT   18
   DIRECTION = FX  PROBABLE CAUSE MODELING PROBLEM     -.437E-10
++ Calculating Joint Displacements.                      10:19:34
++ Calculating Member  Forces.                           10:19:34


 113. LOAD LIST  13 TO 27
 114. PRINT MAXFORCE ENVELOP LIST 1 2 4 5 8 TO 17

       MEMBER FORCE ENVELOPE
       ---------------------

       ALL UNITS ARE KNS  METE

 MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

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

  1  MAX    143.24     .00  13     62.45     .00  15
              .00     .00  13       .00     .00  13    61.30 C     .00  20
     MIN   -127.57    2.83  25    -56.03    1.41  23
              .00    2.83  27       .00    2.83  27    24.45 C    2.83  22

  2  MAX    130.43     .00  26     49.01     .00  24
              .00     .00  13       .00     .00  13   105.42 C     .00  20
     MIN   -130.78    2.82  20    -54.79    1.41  18
              .00    2.82  27       .00    2.82  27    21.04 C    2.82  22

  4  MAX     42.91    2.25  27     19.05    2.25  26
              .00     .00  13       .00     .00  13   160.47 C    2.25  13
     MIN    -61.30     .00  20    -62.45     .00  15
              .00    2.25  27       .00    2.25  27    16.78 C    2.06  27

  5  MAX      3.40     .00  22     45.88    2.25  26
              .00     .00  13       .00     .00  13   188.08 C    2.25  25
     MIN    -44.12    2.25  20    -54.09     .00  20
              .00    2.25  27       .00    2.25  27    15.71 C    2.06  27

  8  MAX    -17.35     .00  27     39.25     .57  26
              .00     .00  13       .00     .00  13    42.91 C     .00  27
     MIN    -96.83     .57  13    -32.09     .00  13
              .00     .57  27       .00     .57  27    12.10 T     .57  26

  9  MAX      7.60     .00  26     48.14     .57  21
              .00     .00  13       .00     .00  13    42.91 C     .00  27
     MIN    -37.10     .57  13      1.86     .00  27
              .00     .57  27       .00     .57  27    12.10 T     .57  26

 10  MAX     49.89     .00  26     48.14     .00  21
              .00     .00  13       .00     .00  13    42.91 C     .00  27
     MIN      3.26     .57  27      2.80     .57  27
              .00     .57  27       .00     .57  27    12.10 T     .57  26

 11  MAX     72.96     .00  26     29.26     .00  13
              .00     .00  13       .00     .00  13    42.91 C     .00  27
     MIN      8.58     .57  27    -30.90     .57  26
              .00     .57  27       .00     .57  27    12.10 T     .57  26
```

| MEMB | | FY/ FZ | DIST DIST | LD LD | MZ/ MY | DIST DIST | LD LD | FX | DIST | LD |
|---|---|---|---|---|---|---|---|---|---|---|
| 12 | MAX | 100.55 | .00 | 21 | 1.25 | .00 | 13 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 42.91 C | .00 | 27 |
| | MIN | 14.05 | .57 | 27 | -84.66 | .57 | 26 | | | |
| | | .00 | .57 | 27 | .00 | .57 | 27 | 12.10 T | .57 | 26 |
| 13 | MAX | -9.00 | .00 | 27 | -1.09 | .56 | 27 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 44.56 C | .00 | 13 |
| | MIN | -65.69 | .56 | 25 | -54.15 | .00 | 25 | | | |
| | | .00 | .56 | 27 | .00 | .56 | 27 | 56.10 T | .56 | 26 |
| 14 | MAX | -3.39 | .00 | 27 | 11.16 | .56 | 16 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 44.56 C | .00 | 13 |
| | MIN | -39.12 | .56 | 25 | -18.57 | .00 | 25 | | | |
| | | .00 | .56 | 27 | .00 | .56 | 27 | 56.10 T | .56 | 26 |
| 15 | MAX | 8.72 | .00 | 16 | 11.16 | .00 | 16 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 44.56 C | .00 | 13 |
| | MIN | -14.43 | .56 | 25 | 1.70 | .00 | 23 | | | |
| | | .00 | .56 | 27 | .00 | .56 | 27 | 56.10 T | .56 | 26 |
| 16 | MAX | 44.15 | .00 | 22 | 9.87 | .00 | 14 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 44.56 C | .00 | 13 |
| | MIN | 3.39 | .56 | 27 | -16.90 | .56 | 22 | | | |
| | | .00 | .56 | 27 | .00 | .56 | 27 | 56.10 T | .56 | 26 |
| 17 | MAX | 80.85 | .00 | 22 | 3.92 | .00 | 19 | | | |
| | | .00 | .00 | 13 | .00 | .00 | 13 | 44.56 C | .00 | 13 |
| | MIN | 8.96 | .56 | 27 | -61.36 | .56 | 22 | | | |
| | | .00 | .56 | 27 | .00 | .56 | 27 | 56.10 T | .56 | 26 |

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

115. START CONC DESIGN
116. FC 25000.0
117. TRACK 2
118. MAXMAIN 20.
119. CLEAR 0.05
120. DESIGN BEAM 1 2

B E A M N O. 1 D E S I G N R E S U L T S - FLEXURE

LEN - 2830. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 73. | 3 - 20MM | 0. | 2830. | YES | YES |
| | CRITICAL POS MOMENT= 59.38 KN-MET AT 1415.MM, LOAD 22 | | | | | |
| | REQD STEEL= 937.MM2, ROW= .0052, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 439. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 493./ 595. MMS | | | | | |
| 2 | 179. | 5 - 16MM | 0. | 1658. | YES | NO |
| | CRITICAL NEG MOMENT= 62.45 KN-MET AT 0.MM, LOAD 15 | | | | | |
| | REQD STEEL= 976.MM2, ROW= .0054, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 221. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS | | | | | |

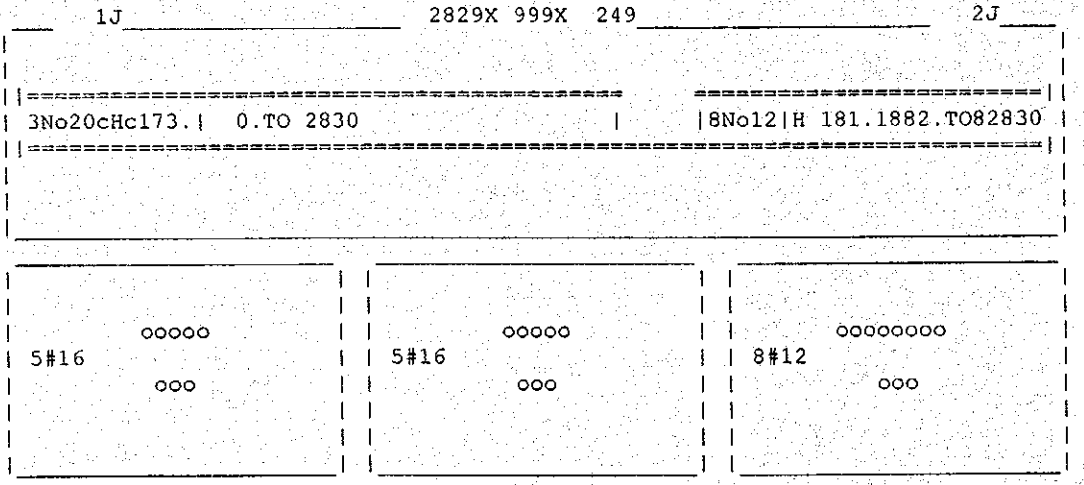
```
  3        181.      8 - 12MM      1882.          2830.          NO   YES
|-------------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      52.14 KN-MET  AT  2830.MM, LOAD  22 |
|   REQD STEEL=   807.MM2, ROW= .0045, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  127. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
|-------------------------------------------------------------------------|
```

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 0./ | 1029. | 0./ | 62. | 0/ | 15 |
| 236. | 0./ | 615. | 0./ | 38. | 0/ | 20 |
| 472. | 248./ | 408. | 16./ | 26. | 13/ | 20 |
| 707. | 522./ | 232. | 33./ | 15. | 13/ | 20 |
| 943. | 702./ | 86. | 43./ | 5. | 22/ | 20 |
| 1179. | 863./ | 4. | 53./ | 0. | 22/ | 27 |
| 1415. | 975./ | 0. | 59./ | 0. | 22/ | 0 |
| 1651. | 871./ | 0. | 53./ | 0. | 23/ | 0 |
| 1887. | 710./ | 0. | 44./ | 0. | 23/ | 0 |
| 2122. | 448./ | 0. | 28./ | 0. | 21/ | 0 |
| 2358. | 245./ | 160. | 16./ | 10. | 20/ | 13 |
| 2594. | 209./ | 443. | 13./ | 28. | 20/ | 13 |
| 2830. | 148./ | 850. | 9./ | 52. | 20/ | 22 |

B E A M  N O.  1  D E S I G N  R E S U L T S - SHEAR

```
 AT START SUPPORT - Vu=  122.00 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT  87. MM  C/C FOR  590. MM
 AT END   SUPPORT - Vu=  112.23 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT  87. MM  C/C FOR  825. MM
```




B E A M  N O.  2  D E S I G N  R E S U L T S - FLEXURE

```
 LEN -  2820. MM  FY -  414.  FC -  25.  MPA, SIZE - 1000. X  250. MMS
```

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|

```
  1         69.     8 - 12MM        15.         2687.        NO   NO
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=     54.79 KN-MET  AT  1410.MM, LOAD  18 |
|   REQD STEEL=   850.MM2, ROW= .0047, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  127. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   337. MMS          |
|-------------------------------------------------------------------|

  2        181.     7 - 12MM         0.         2820.        YES  YES
|     DESIGN OF BOX CULVERT AT CH. 2+760 (3 X 2.5 X 2.0)       -- PAGE NO.    8

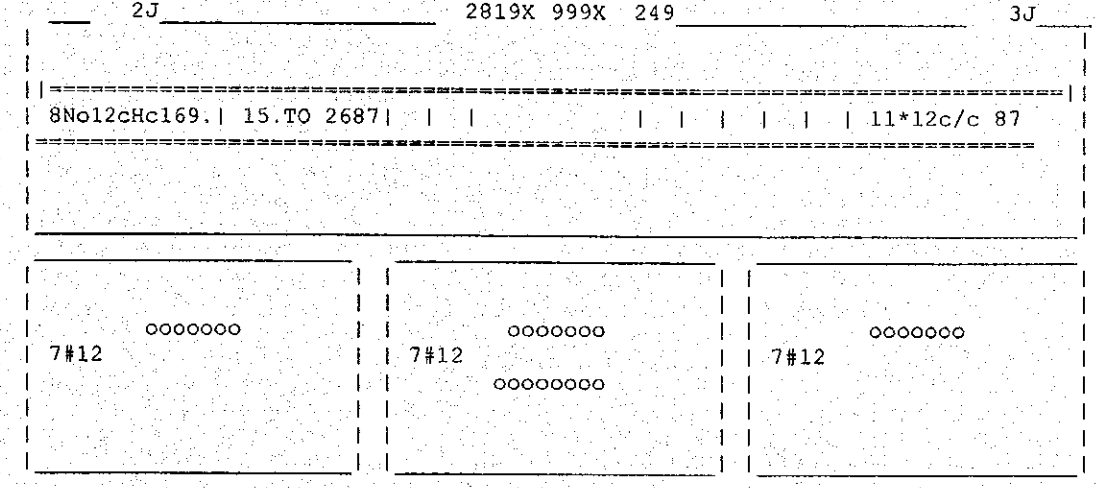
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     49.01 KN-MET  AT     0.MM, LOAD  24 |
|   REQD STEEL=   766.MM2, ROW= .0043, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  148. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
|-------------------------------------------------------------------|
```

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | MOMENTS(+VE/-VE) (KNS-MET ) | LOAD(+VE/-VE) |
|---|---|---|---|
| 0. | 0./ 796. | 0./ 49. | 0/ 24 |
| 235. | 0./ 461. | 0./ 29. | 0/ 21 |
| 470. | 108./ 284. | 7./ 18. | 20/ 22 |
| 705. | 397./ 191. | 25./ 12. | 20/ 22 |
| 940. | 665./ 124. | 41./ 8. | 18/ 22 |
| 1175. | 837./ 84. | 51./ 5. | 18/ 22 |
| 1410. | 896./ 69. | 55./ 4. | 18/ 22 |
| 1645. | 839./ 80. | 51./ 5. | 18/ 22 |
| 1880. | 669./ 116. | 41./ 7. | 18/ 22 |
| 2115. | 400./ 179. | 25./ 11. | 20/ 22 |
| 2350. | 186./ 268. | 12./ 17. | 15/ 22 |
| 2585. | 0./ 385. | 0./ 24. | 0/ 22 |
| 2820. | 0./ 792. | 0./ 49. | 0/ 24 |

B E A M  N O.  2  D E S I G N  R E S U L T S - SHEAR

```
AT START SUPPORT - Vu=  115.09 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                   PROVIDE 12 MM BARS AT  87. MM  C/C FOR  822. MM
AT END   SUPPORT - Vu=  114.96 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                   PROVIDE 12 MM BARS AT  87. MM  C/C FOR  822. MM
```



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121. CLEAR  0.065
122. DESIGN BEAM 4 5 8 TO 17

        B E A M  N O.   4  D E S I G N  R E S U L T S -  FLEXURE

LEN -  2250. MM  FY -  414.  FC -  25.  MPA, SIZE - 1000. X  250. MMS

LEVEL     HEIGHT      BAR INFO        FROM          TO          ANCHOR
            (MM)                       (MM)         (MM)        STA  END
-------------------------------------------------------------------------

  1          84.     10 - 12MM          0.          2250.        YES  YES
 |-------------------------------------------------------------------|
 |   CRITICAL POS MOMENT=      62.45 KN-MET  AT      0.MM, LOAD  15 |
 |   REQD STEEL=  1091.MM2, ROW= .0066, ROWMX= .0194 ROWMN= .0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=    886./   37./   98. MMS         |
 |   BASIC/REQD. DEVELOPMENT LENGTH =   177./   346. MMS          |
 |-------------------------------------------------------------------|

  2         166.      5 - 12MM        110.          2250.         NO   YES
 |-------------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=      19.05 KN-MET  AT  2250.MM, LOAD  26 |
 |   REQD STEEL=   554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=    886./   37./  222. MMS         |
 |   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
 |-------------------------------------------------------------------|

 REQUIRED REINF. STEEL SUMMARY :
 -------------------------------
 SECTION      REINF STEEL(+VE/-VE)      MOMENTS(+VE/-VE)     LOAD(+VE/-VE)
 ( MM )         (SQ.  MM )                (KNS-MET )

    0.        1142./      0.            62./      0.        15/   0
  187.         944./      0.            52./      0.        15/   0
  375.         791./      0.            44./      0.        21/   0
  562.         676./     25.            38./      1.        21/  27
  750.         570./     89.            32./      5.        21/  27
  937.         471./    137.            27./      8.        21/  27
 1125.         384./    166.            22./     10.        25/  27
 1312.         336./    175.            19./     10.        22/  27
 1500.         304./    209.            18./     12.        22/  20
 1687.         283./    260.            16./     15.        22/  20
 1875.         340./    282.            20./     16.        13/  20
 2062.         436./    285.            25./     16.        13/  26
 2250.         565./    331.            32./     19.        13/  26


        B E A M  N O.   4  D E S I G N  R E S U L T S -  SHEAR

  AT START SUPPORT - Vu=   58.37 KNS  Vc=  132.52 KNS  Vs=      .00 KNS
                     PROVIDE 12 MM BARS AT  80. MM  C/C FOR  281. MM
|    DESIGN OF BOX CULVERT AT CH. 2+760 (3 X 2.5 X 2.0)        -- PAGE NO.   11

  AT END   SUPPORT - Vu=   33.85 KNS  Vc=  132.52 KNS  Vs=      .00 KNS
                     STIRRUPS ARE NOT REQUIRED.
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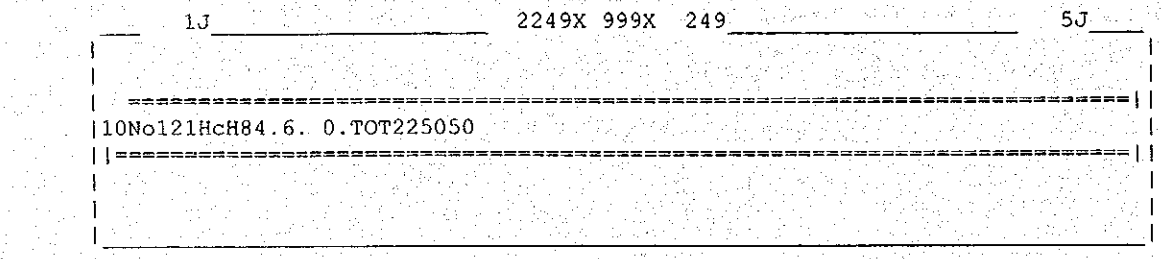
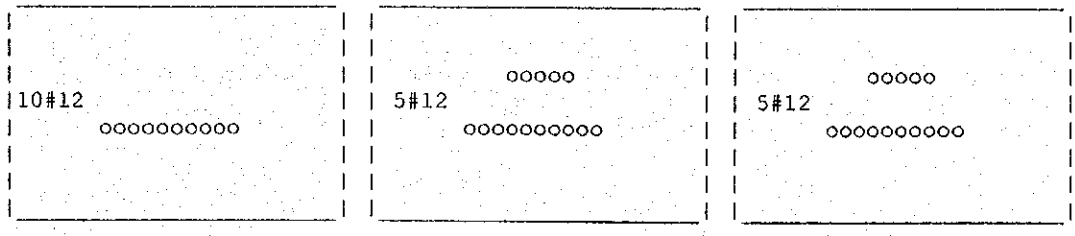





B E A M N O. 5 D E S I G N R E S U L T S - FLEXURE

LEN - 2250. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 88. | 3 - 20MM | 0. | 1719. | YES | NO |
| | CRITICAL POS MOMENT= 54.09 KN-MET AT 0.MM, LOAD 20 | | | | | |
| | REQD STEEL= 936.MM2, ROW= .0057, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 439. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 493./ 594. MMS | | | | | |
| 2 | 166. | 7 - 12MM | 0. | 2250. | YES | YES |
| | CRITICAL NEG MOMENT= 45.88 KN-MET AT 2250.MM, LOAD 26 | | | | | |
| | REQD STEEL= 776.MM2, ROW= .0047, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 148. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

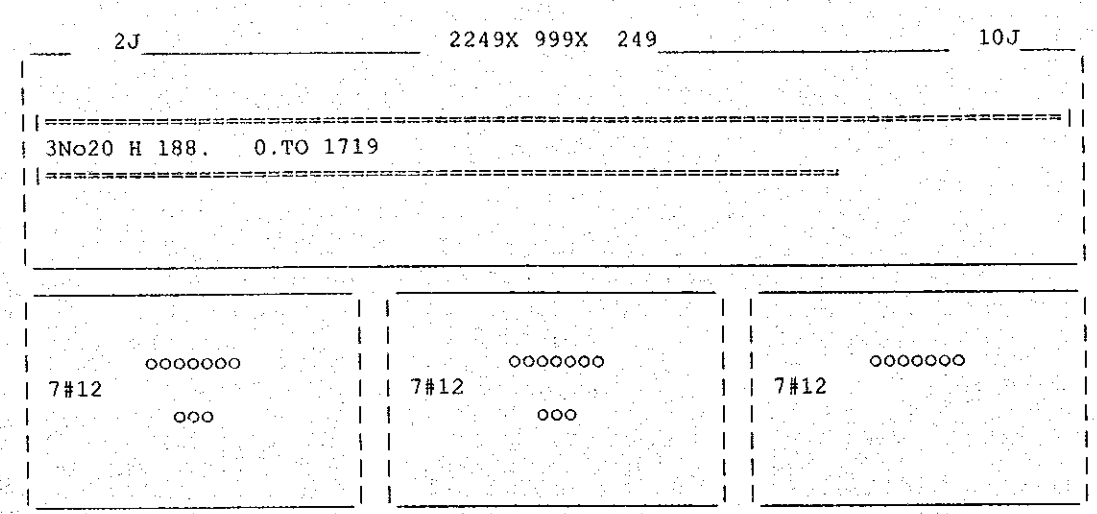
| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 978./ | 304. | 54./ | 18. | 20/ | 22 |
| 187. | 820./ | 293. | 46./ | 17. | 20/ | 22 |
| 375. | 665./ | 282. | 38./ | 16. | 20/ | 22 |
| 562. | 514./ | 270. | 29./ | 16. | 20/ | 22 |



| | | | | | | |
|---|---|---|---|---|---|---|
| 750. | 365./ | 259. | 21./ | 15. | 20/ | 22 |
| 937. | 223./ | 248. | 13./ | 14. | 18/ | 22 |
| 1125. | 88./ | 237. | 5./ | 14. | 18/ | 22 |
| 1312. | 0./ | 237. | 0./ | 14. | 0/ | 21 |
| 1500. | 0./ | 275. | 0./ | 16. | 0/ | 21 |
| 1687. | 0./ | 368. | 0./ | 21. | 0/ | 26 |
| 1875. | 0./ | 516. | 0./ | 29. | 0/ | 26 |
| 2062. | 0./ | 667. | 0./ | 38. | 0/ | 26 |
| 2250. | 0./ | 822. | 0./ | 46. | 0/ | 26 |

B E A M N O. 5 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 44.12 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 44.12 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 8 D E S I G N R E S U L T S - FLEXURE

LEN - 566. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

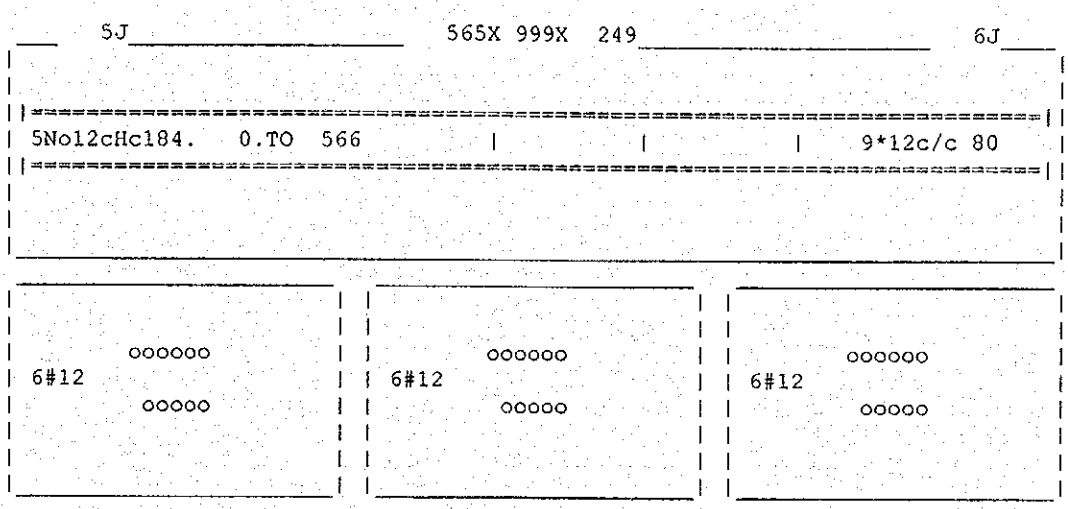
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 5 - 12MM | 0. | 566. | YES | YES |
| | CRITICAL POS MOMENT= 32.09 KN-MET AT 566.MM, LOAD 13 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS | | | | | |
| 2 | 166. | 6 - 12MM | 0. | 566. | YES | YES |
| | CRITICAL NEG MOMENT= 39.25 KN-MET AT 566.MM, LOAD 26 | | | | | |
| | REQD STEEL= 659.MM2, ROW= .0040, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 177. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 565./ | 331. | 32./ | 19. | 13/ | 26 |
| 47. | 486./ | 359. | 28./ | 21. | 13/ | 26 |
| 94. | 407./ | 387. | 23./ | 22. | 13/ | 26 |
| 141. | 328./ | 416. | 19./ | 24. | 13/ | 26 |
| 189. | 250./ | 446. | 15./ | 26. | 13/ | 26 |
| 236. | 173./ | 476. | 10./ | 27. | 13/ | 26 |
| 283. | 96./ | 506. | 6./ | 29. | 13/ | 26 |
| 330. | 52./ | 537. | 3./ | 31. | 27/ | 26 |
| 377. | 36./ | 568. | 2./ | 32. | 27/ | 26 |
| 424. | 19./ | 600. | 1./ | 34. | 27/ | 26 |
| 472. | 3./ | 632. | 0./ | 36. | 27/ | 26 |
| 519. | 0./ | 664. | 0./ | 37. | 0/ | 26 |
| 566. | 0./ | 697. | 0./ | 39. | 0/ | 26 |

B E A M  N O.  8  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 93.72 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM
AT END SUPPORT - Vu= 95.60 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM




B E A M  N O.  9  D E S I G N  R E S U L T S - FLEXURE

LEN - 566. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 8 - 12MM | 0. | 566. | YES | YES |

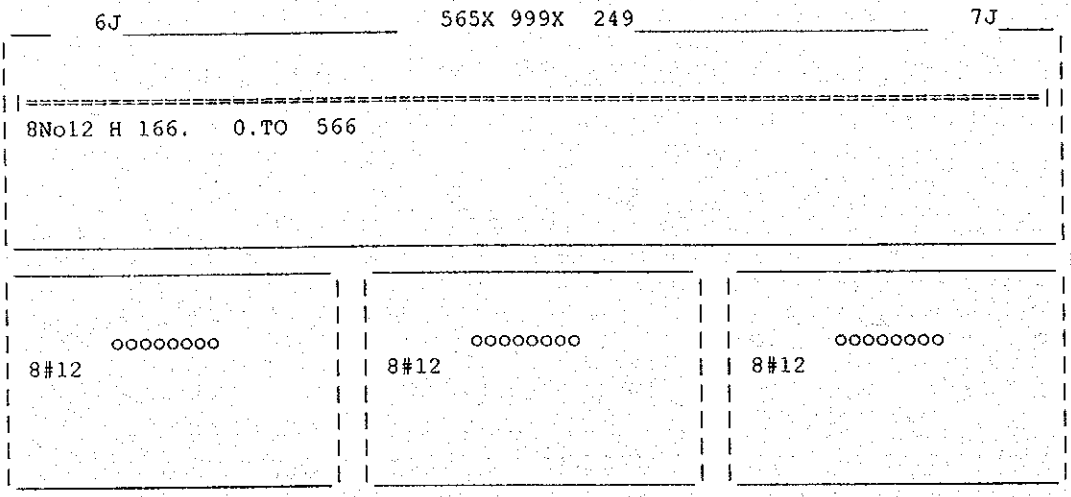
CRITICAL NEG MOMENT= 48.14 KN-MET AT 566.MM, LOAD 21
REQD STEEL= 816.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 127. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | MOMENTS(+VE/-VE) (KNS-MET ) | LOAD(+VE/-VE) |
|---|---|---|---|
| 0. | 0./ 697. | 0./ 39. | 0/ 26 |
| 47. | 0./ 703. | 0./ 40. | 0/ 21 |
| 94. | 0./ 716. | 0./ 40. | 0/ 21 |
| 141. | 0./ 729. | 0./ 41. | 0/ 21 |
| 189. | 0./ 742. | 0./ 42. | 0/ 21 |
| 236. | 0./ 756. | 0./ 42. | 0/ 21 |
| 283. | 0./ 771. | 0./ 43. | 0/ 21 |
| 330. | 0./ 786. | 0./ 44. | 0/ 21 |
| 377. | 0./ 801. | 0./ 45. | 0/ 21 |
| 424. | 0./ 816. | 0./ 46. | 0/ 21 |
| 472. | 0./ 832. | 0./ 46. | 0/ 21 |
| 519. | 0./ 848. | 0./ 47. | 0/ 21 |
| 566. | 0./ 864. | 0./ 48. | 0/ 21 |

B E A M  N O.  9  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 33.99 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 35.88 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 10 D E S I G N R E S U L T S - FLEXURE

LEN - 566. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 8 - 12MM | 0. | 566. | YES | YES |

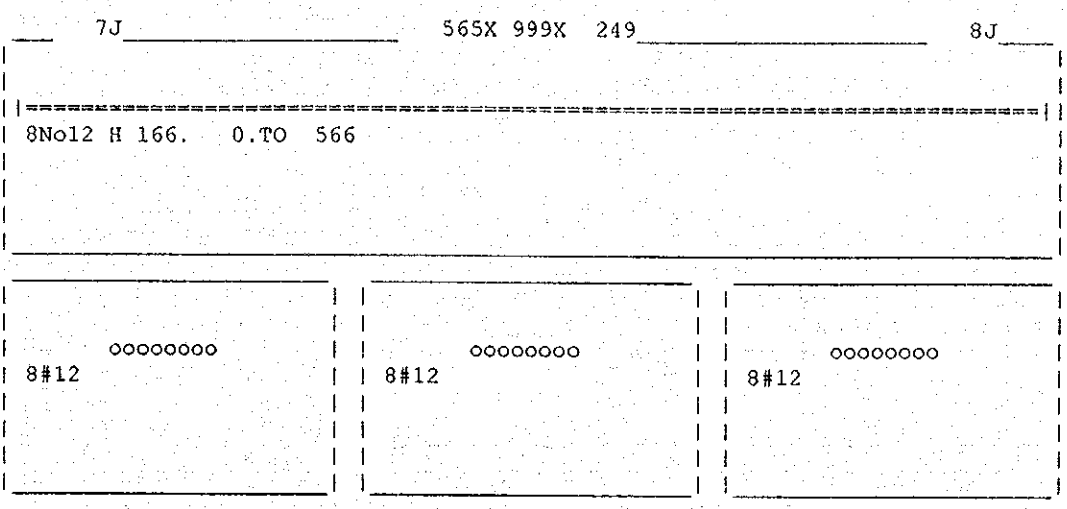
CRITICAL NEG MOMENT= 48.14 KN-MET AT 0.MM, LOAD 21
REQD STEEL= 816.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 127. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | MOMENTS(+VE/-VE) (KNS-MET ) | LOAD(+VE/-VE) |
|---|---|---|---|
| 0. | 0./ 864. | 0./ 48. | 0/ 21 |
| 47. | 0./ 827. | 0./ 46. | 0/ 21 |
| 94. | 0./ 791. | 0./ 44. | 0/ 25 |
| 141. | 0./ 757. | 0./ 42. | 0/ 25 |
| 189. | 0./ 724. | 0./ 41. | 0/ 25 |
| 236. | 0./ 691. | 0./ 39. | 0/ 25 |
| 283. | 0./ 658. | 0./ 37. | 0/ 25 |
| 330. | 0./ 626. | 0./ 35. | 0/ 25 |
| 377. | 0./ 595. | 0./ 34. | 0/ 25 |
| 424. | 0./ 564. | 0./ 32. | 0/ 13 |
| 472. | 0./ 547. | 0./ 31. | 0/ 13 |
| 519. | 0./ 530. | 0./ 30. | 0/ 13 |
| 566. | 0./ 514. | 0./ 29. | 0/ 13 |

B E A M N O. 10 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 48.67 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 46.78 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 11 D E S I G N R E S U L T S - FLEXURE

LEN - 566. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 5 - 12MM | 0. | 566. | YES | YES |

CRITICAL POS MOMENT= 30.90 KN-MET AT 566.MM, LOAD 26
REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 2 | 166. | 5 - 12MM | 0. | 566. | YES | YES |

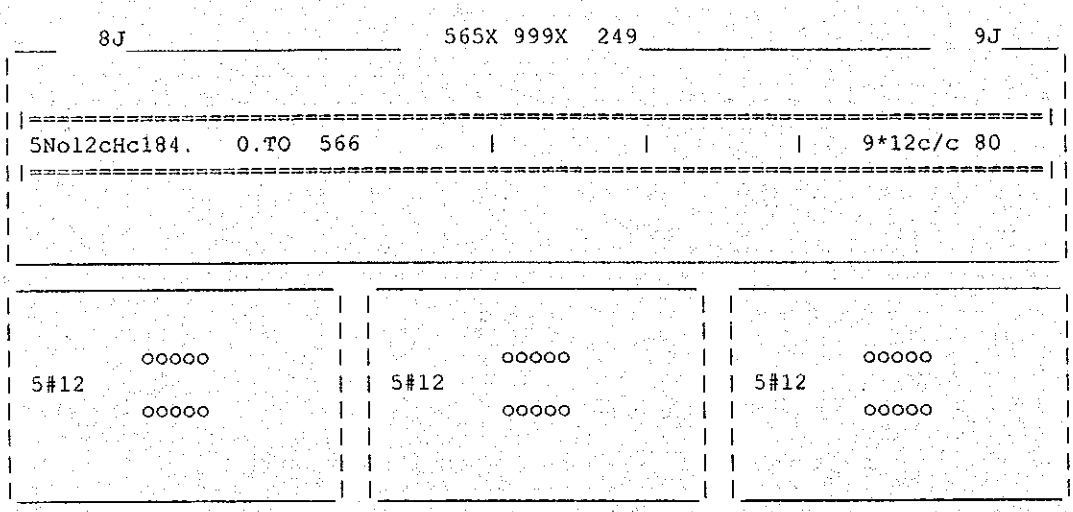
CRITICAL NEG MOMENT= 29.26 KN-MET AT 0.MM, LOAD 13
REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 0./ | 514. | 0./ | 29. | 0/ | 13 |
| 47. | 0./ | 470. | 0./ | 27. | 0/ | 13 |
| 94. | 0./ | 426. | 0./ | 24. | 0/ | 13 |
| 141. | 33./ | 383. | 2./ | 22. | 20/ | 13 |
| 189. | 89./ | 341. | 5./ | 20. | 20/ | 13 |
| 236. | 146./ | 299. | 8./ | 17. | 20/ | 13 |
| 283. | 202./ | 258. | 12./ | 15. | 20/ | 13 |
| 330. | 258./ | 217. | 15./ | 13. | 20/ | 13 |
| 377. | 315./ | 177. | 18./ | 10. | 20/ | 13 |
| 424. | 371./ | 137. | 21./ | 8. | 20/ | 13 |
| 472. | 428./ | 98. | 25./ | 6. | 20/ | 13 |
| 519. | 485./ | 59. | 28./ | 3. | 20/ | 13 |
| 566. | 543./ | 21. | 31./ | 1. | 26/ | 13 |

B E A M N O. 11 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 71.74 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM
AT END SUPPORT - Vu= 69.85 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM




B E A M N O. 12 D E S I G N R E S U L T S - FLEXURE

LEN - 566. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

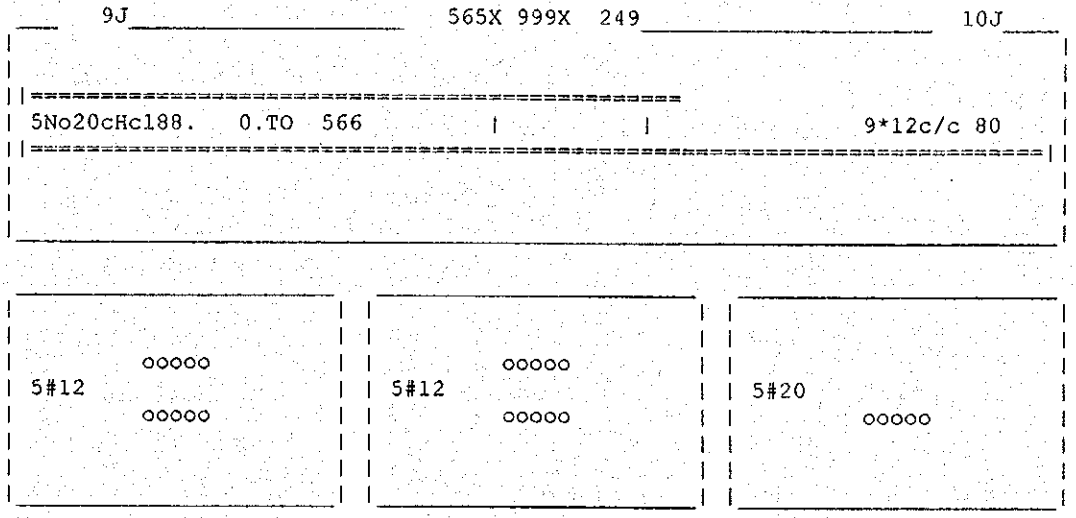
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 88. | 5 - 20MM | 0. | 566. | YES | YES |
| | CRITICAL POS MOMENT= 84.66 KN-MET AT 566.MM, LOAD 26 | | | | | |
| | REQD STEEL= 1521.MM2, ROW= .0093, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 220. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 493./ 579. MMS | | | | | |
| 2 | 166. | 5 - 12MM | 0. | 359. | YES | NO |
| | CRITICAL NEG MOMENT= 1.25 KN-MET AT 0.MM, LOAD 13 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 543./ | 21. | 31./ | 1. | 26/ | 13 |
| 47. | 627./ | 0. | 35./ | 0. | 26/ | 0 |
| 94. | 712./ | 0. | 40./ | 0. | 26/ | 0 |
| 141. | 797./ | 0. | 45./ | 0. | 26/ | 0 |
| 189. | 882./ | 0. | 49./ | 0. | 26/ | 0 |
| 236. | 969./ | 0. | 54./ | 0. | 26/ | 0 |
| 283. | 1056./ | 0. | 58./ | 0. | 26/ | 0 |
| 330. | 1144./ | 0. | 63./ | 0. | 26/ | 0 |
| 377. | 1233./ | 0. | 67./ | 0. | 26/ | 0 |
| 424. | 1322./ | 0. | 71./ | 0. | 26/ | 0 |
| 472. | 1413./ | 0. | 76./ | 0. | 26/ | 0 |
| 519. | 1504./ | 0. | 80./ | 0. | 26/ | 0 |
| 566. | 1596./ | 0. | 85./ | 0. | 26/ | 0 |

B E A M  N O.  12  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 99.33 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM
AT END SUPPORT - Vu= 97.44 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 566. MM




B E A M  N O.  13  D E S I G N  R E S U L T S - FLEXURE

LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 88. | 3 - 20MM | 0. | 560. | YES | YES |

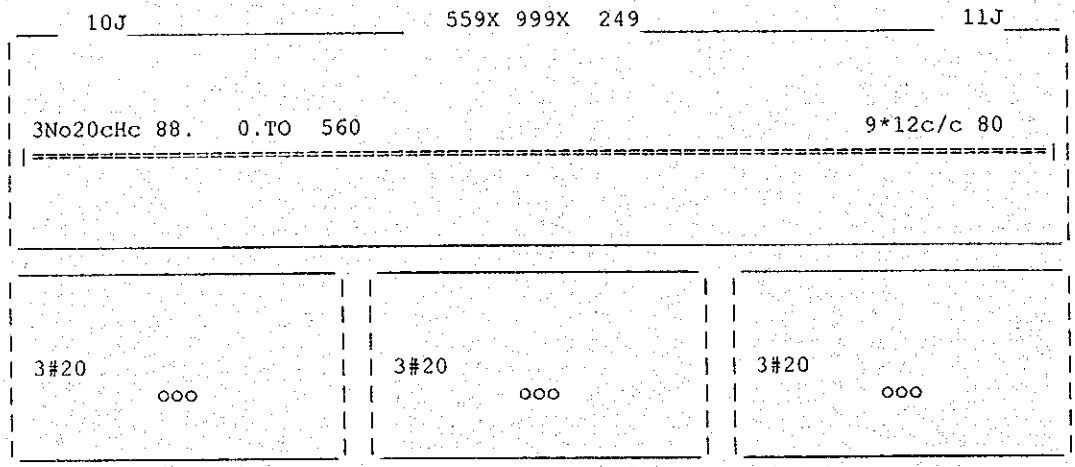
CRITICAL POS MOMENT= 54.15 KN-MET AT 0.MM, LOAD 25
REQD STEEL= 937.MM2, ROW= .0057, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 439. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 493./ 595. MMS

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 980./ | 0. | 54./ | 0. | 25/ | 0 |
| 47. | 924./ | 0. | 51./ | 0. | 25/ | 0 |
| 93. | 869./ | 0. | 48./ | 0. | 25/ | 0 |
| 140. | 814./ | 0. | 45./ | 0. | 25/ | 0 |
| 187. | 759./ | 0. | 43./ | 0. | 25/ | 0 |
| 233. | 704./ | 0. | 40./ | 0. | 25/ | 0 |
| 280. | 649./ | 0. | 37./ | 0. | 25/ | 0 |
| 327. | 594./ | 0. | 34./ | 0. | 25/ | 0 |
| 373. | 540./ | 0. | 31./ | 0. | 25/ | 0 |
| 420. | 485./ | 0. | 28./ | 0. | 25/ | 0 |
| 467. | 431./ | 0. | 25./ | 0. | 25/ | 0 |
| 513. | 376./ | 0. | 22./ | 0. | 25/ | 0 |
| 560. | 322./ | 0. | 19./ | 0. | 25/ | 0 |

B E A M  N O.  13  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 62.62 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 560. MM
AT END SUPPORT - Vu= 64.46 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 560. MM




B E A M  N O.  14  D E S I G N  R E S U L T S - FLEXURE

LEN - 565. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

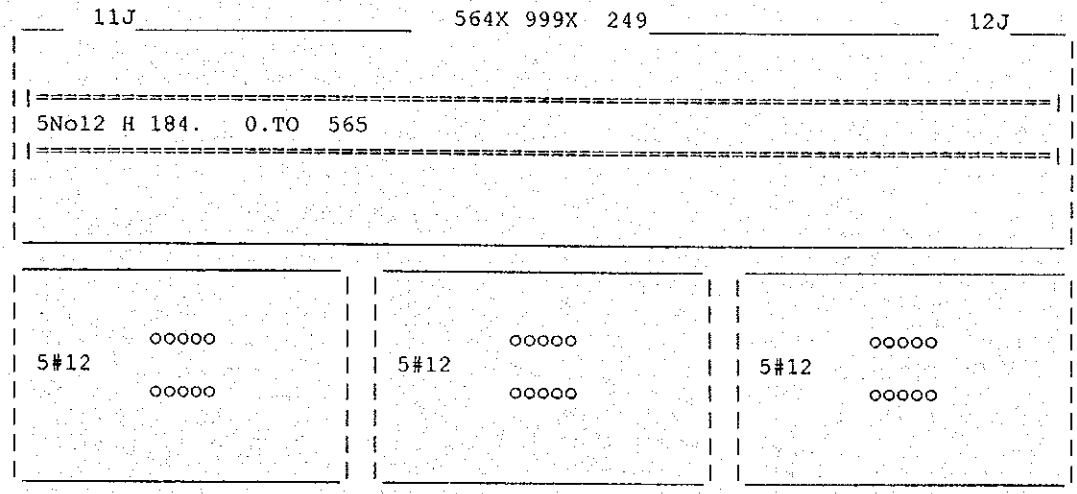
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 5 - 12MM | 0. | 565. | YES | YES |
| | CRITICAL POS MOMENT= 18.57 KN-MET AT 0.MM, LOAD 25 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS | | | | | |
| 2 | 166. | 5 - 12MM | 0. | 565. | YES | YES |
| | CRITICAL NEG MOMENT= 11.16 KN-MET AT 565.MM, LOAD 16 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 322./ | 0. | 19./ | 0. | 25/ | 0 |
| 47. | 293./ | 0. | 17./ | 0. | 25/ | 0 |
| 94. | 264./ | 0. | 15./ | 0. | 25/ | 0 |
| 141. | 234./ | 0. | 14./ | 0. | 25/ | 0 |
| 188. | 204./ | 8. | 12./ | 0. | 25/ | 16 |
| 235. | 175./ | 30. | 10./ | 2. | 25/ | 16 |
| 282. | 145./ | 52. | 8./ | 3. | 25/ | 16 |
| 330. | 114./ | 74. | 7./ | 4. | 25/ | 16 |
| 377. | 86./ | 97. | 5./ | 6. | 23/ | 16 |
| 424. | 57./ | 120. | 3./ | 7. | 23/ | 16 |
| 471. | 29./ | 144. | 2./ | 8. | 23/ | 16 |
| 518. | 0./ | 168. | 0./ | 10. | 23/ | 16 |
| 565. | 0./ | 192. | 0./ | 11. | 0/ | 16 |

B E A M  N O.  14  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 36.02 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 37.90 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O.  15  D E S I G N  R E S U L T S - FLEXURE

LEN - 565. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 5 - 12MM | 0. | 565. | YES | YES |

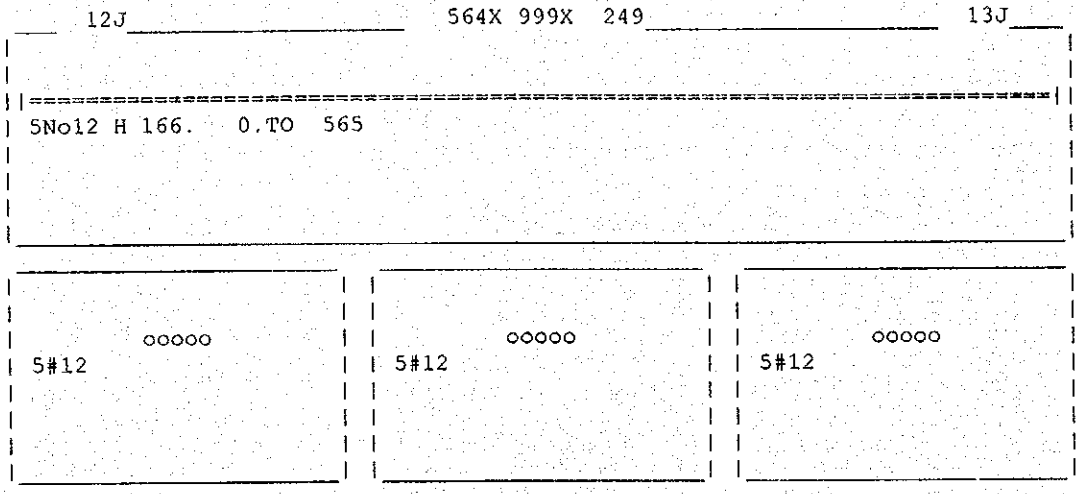
CRITICAL NEG MOMENT= 11.16 KN-MET AT 0.MM, LOAD 16
REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | MOMENTS(+VE/-VE) (KNS-MET ) | LOAD(+VE/-VE) |
|---|---|---|---|
| 0. | 0./ 192. | 0./ 11. | 0/ 16 |
| 47. | 0./ 185. | 0./ 11. | 0/ 16 |
| 94. | 0./ 178. | 0./ 10. | 0/ 16 |
| 141. | 0./ 172. | 0./ 10. | 0/ 16 |
| 188. | 0./ 166. | 0./ 10. | 0/ 16 |
| 235. | 0./ 160. | 0./ 9. | 0/ 16 |
| 282. | 0./ 154. | 0./ 9. | 0/ 16 |
| 330. | 0./ 149. | 0./ 9. | 0/ 16 |
| 377. | 0./ 144. | 0./ 8. | 0/ 16 |
| 424. | 0./ 145. | 0./ 8. | 0/ 13 |
| 471. | 0./ 149. | 0./ 9. | 0/ 13 |
| 518. | 0./ 158. | 0./ 9. | 0/ 14 |
| 565. | 0./ 170. | 0./ 10. | 0/ 14 |

B E A M N O. 15 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 11.32 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 13.21 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 16 D E S I G N R E S U L T S - FLEXURE

LEN - 565. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

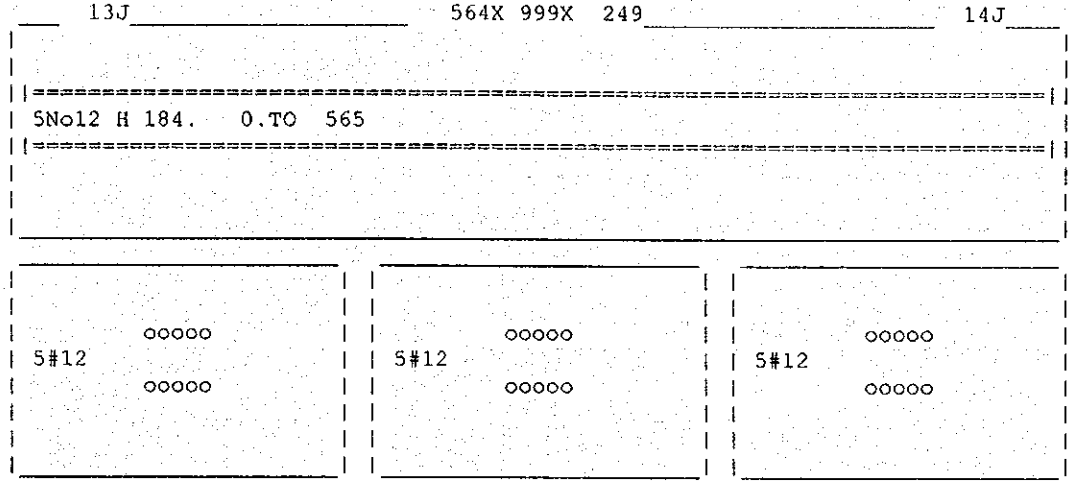
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 5 - 12MM | 0. | 565. | YES | YES |
| | CRITICAL POS MOMENT= 16.90 KN-MET AT 565.MM, LOAD 22 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS | | | | | |
| 2 | 166. | 5 - 12MM | 0. | 565. | YES | YES |
| | CRITICAL NEG MOMENT= 9.87 KN-MET AT 0.MM, LOAD 14 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 0./ | 170. | 0./ | 10. | 0/ | 14 |
| 47. | 0./ | 159. | 0./ | 9. | 0/ | 19 |
| 94. | 0./ | 149. | 0./ | 9. | 0/ | 19 |
| 141. | 7./ | 140. | 0./ | 8. | 26/ | 19 |
| 188. | 28./ | 130. | 2./ | 8. | 26/ | 19 |
| 235. | 57./ | 121. | 3./ | 7. | 22/ | 19 |
| 282. | 91./ | 113. | 5./ | 7. | 22/ | 19 |
| 330. | 125./ | 104. | 7./ | 6. | 22/ | 19 |
| 377. | 159./ | 96. | 9./ | 6. | 22/ | 19 |
| 424. | 193./ | 89. | 11./ | 5. | 22/ | 19 |
| 471. | 226./ | 81. | 13./ | 5. | 22/ | 19 |
| 518. | 259./ | 74. | 15./ | 4. | 22/ | 19 |
| 565. | 293./ | 67. | 17./ | 4. | 22/ | 19 |

B E A M  N O.  16  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 42.93 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 41.05 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O.  17  D E S I G N  R E S U L T S - FLEXURE

LEN - 565. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

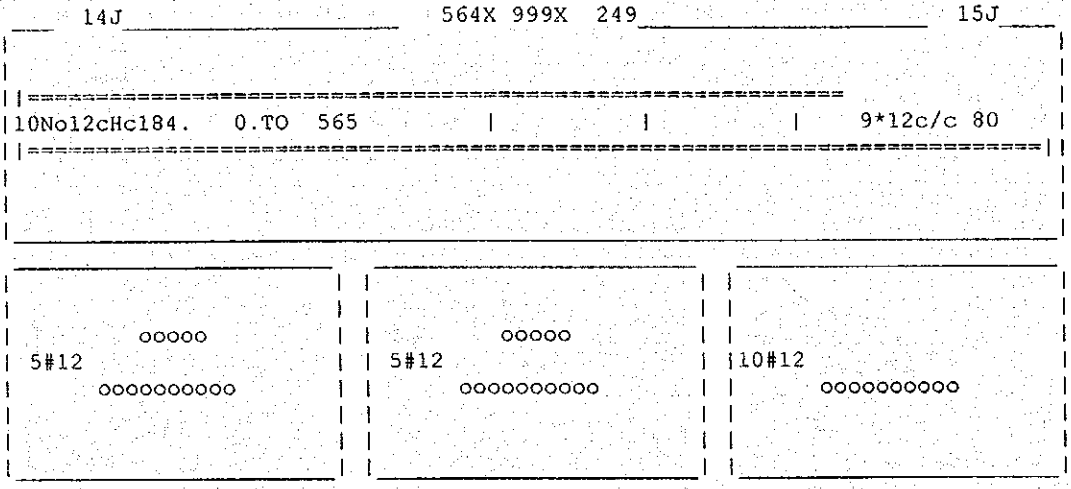
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 10 - 12MM | 0. | 565. | YES | YES |
| | CRITICAL POS MOMENT= 61.36 KN-MET AT 565.MM, LOAD 22 | | | | | |
| | REQD STEEL= 1056.MM2, ROW= .0064, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 98. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 335. MMS | | | | | |
| 2 | 166. | 5 - 12MM | 0. | 453. | YES | NO |
| | CRITICAL NEG MOMENT= 3.92 KN-MET AT 0.MM, LOAD 19 | | | | | |
| | REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 | | | | | |
| | MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS | | | | | |
| | BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS | | | | | |

REQUIRED REINF. STEEL SUMMARY :

| SECTION ( MM ) | REINF STEEL(+VE/-VE) (SQ. MM ) | | MOMENTS(+VE/-VE) (KNS-MET ) | | LOAD(+VE/-VE) | |
|---|---|---|---|---|---|---|
| 0. | 293./ | 67. | 17./ | 4. | 22/ | 19 |
| 47. | 360./ | 40. | 21./ | 2. | 22/ | 19 |
| 94. | 427./ | 13. | 24./ | 1. | 22/ | 19 |
| 141. | 495./ | 0. | 28./ | 0. | 22/ | 0 |
| 188. | 563./ | 0. | 32./ | 0. | 22/ | 0 |
| 235. | 632./ | 0. | 36./ | 0. | 22/ | 0 |
| 282. | 701./ | 0. | 39./ | 0. | 22/ | 0 |
| 330. | 770./ | 0. | 43./ | 0. | 22/ | 0 |
| 377. | 839./ | 0. | 47./ | 0. | 22/ | 0 |
| 424. | 909./ | 0. | 50./ | 0. | 22/ | 0 |
| 471. | 979./ | 0. | 54./ | 0. | 22/ | 0 |
| 518. | 1049./ | 0. | 58./ | 0. | 22/ | 0 |
| 565. | 1120./ | 0. | 61./ | 0. | 22/ | 0 |

B E A M N O. 17 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 79.62 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 565. MM
AT END SUPPORT - Vu= 77.74 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 565. MM




**********END OF BEAM DESIGN**********

123. END CONC DESIGN
124. FINISH

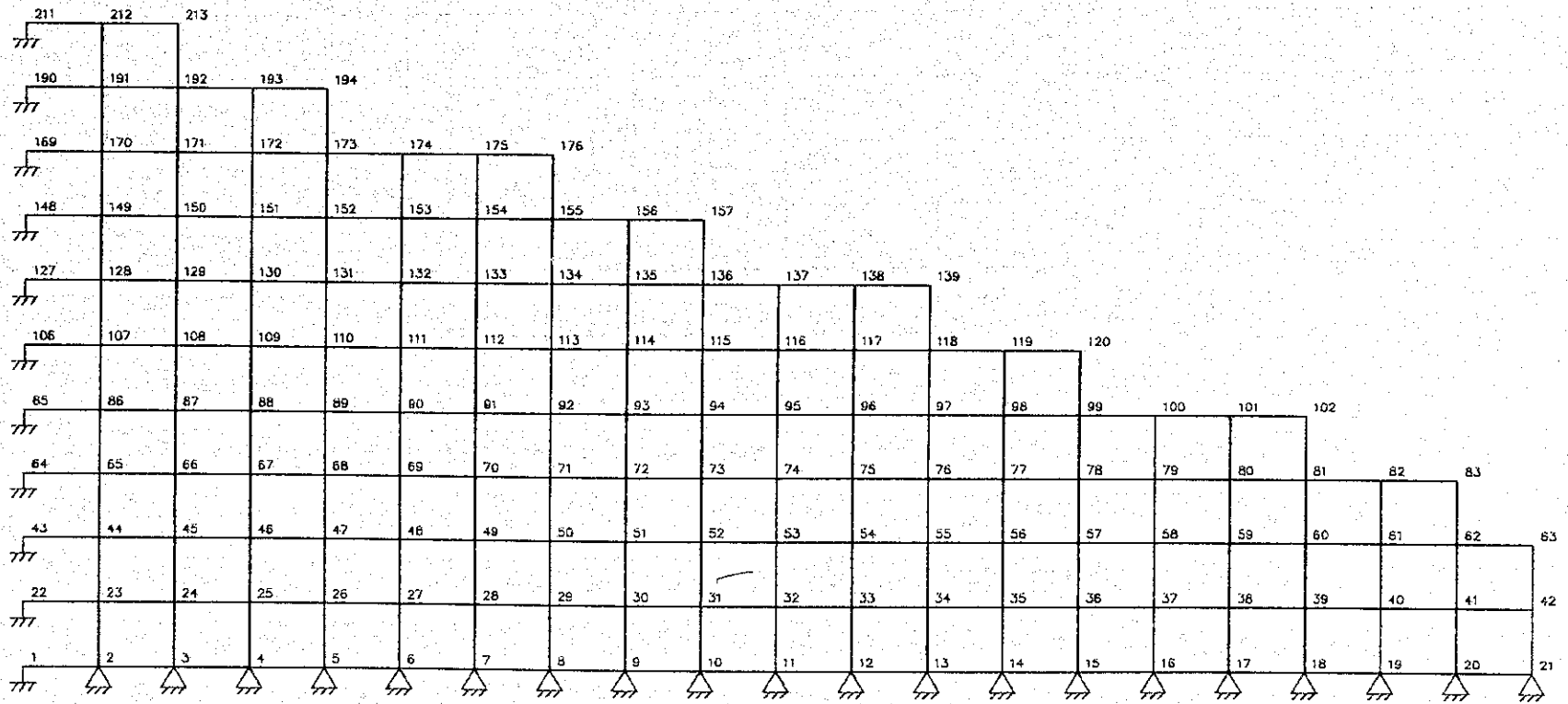
********** END OF STAAD-III **********

**** DATE= JAN 30,2000 TIME= 10:19:35 ****

# 2-1-2 BOX CULVERT AT CH.3+760

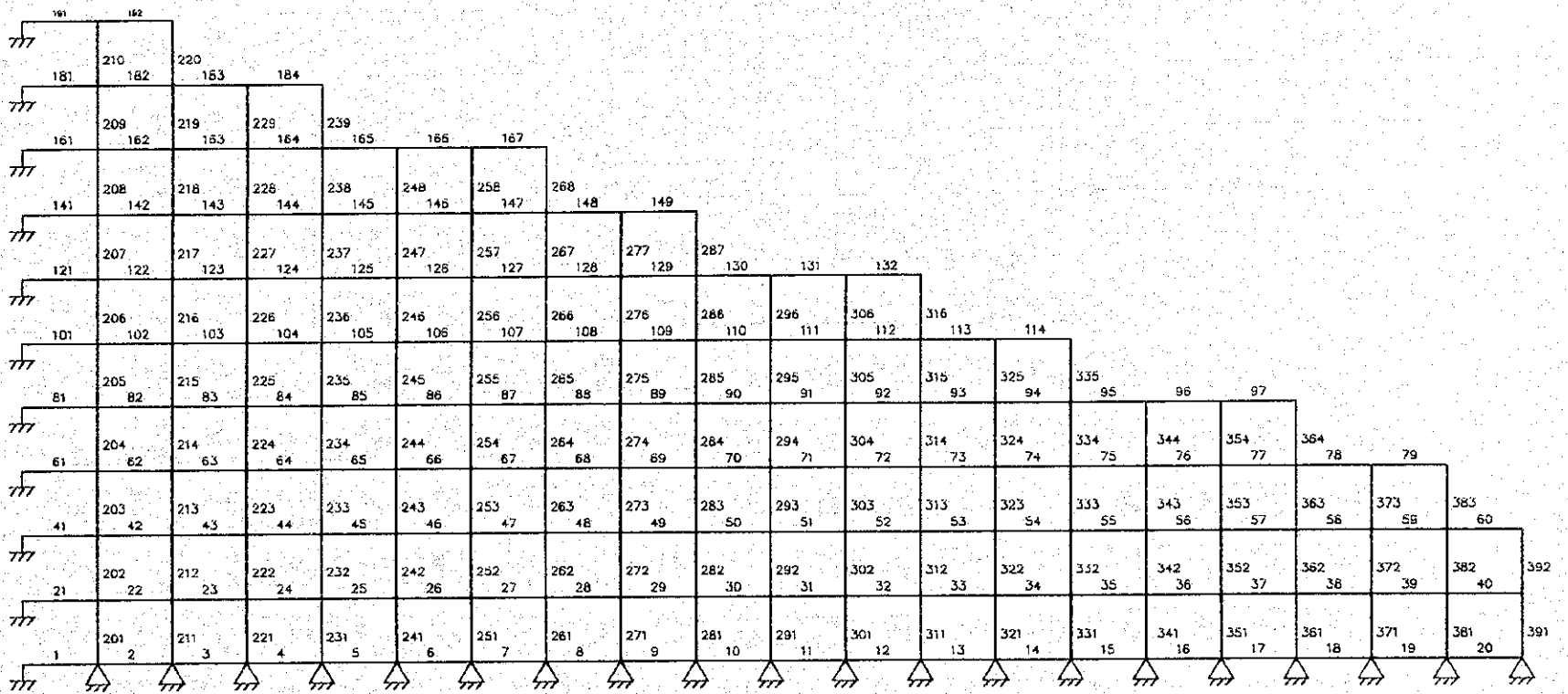
# (2) WING WALL

# WING WALL AT CH. 2+760




WING WALL WITH JOINT NUMBER

# WING WALL AT CH. 2+760



WING WALL WITH MEMBER NUMBER

```
 ****************************************************
 *                                                  *
 *           S T A A D - III                        *
 *           Revision 22.3a                         *
 *           Proprietary Program of                 *
 *           Research Engineers, Inc.               *
 *           Date=    JAN 29, 2000                  *
 *           Time=    15: 9:31                      *
 *                                                  *
 *      USER ID: Development Design Consultants L   *
 ****************************************************

  1. STAAD SPACE
  2. UNIT KNS METER
  3. PAGE EJE
  4. JOI COO
  5.       1 0.000 0.000 0.000    21   6.70 0.000 0.000
  6. R           2 0.000 0.000 0.295
  7. 64      0.000 0.000 0.885    83  6.365 0.000 0.885
  8. 85      0.000 0.000 1.180   102  5.695 0.000 1.180
  9. 106     0.000 0.000 1.475   120  4.690 0.000 1.475
 10. 127     0.000 0.000 1.770   139  4.020 0.000 1.770
 11. 148     0.000 0.000 2.065   157  3.015 0.000 2.065
 12. 169     0.000 0.000 2.360   176  2.345 0.000 2.360
 13. 190     0.000 0.000 2.655   194  1.340 0.000 2.655
 14. 211     0.000 0.000 2.950   213  0.670 0.000 2.950
 16. MEM INC
 17. *HORIZONTAL MEMBER
 18. 1     1     2     20    1     1
 19. R     2     20    21
 20. 61    64    65    79    1     1
 21. 81    85    86    97    1     1
 22. 101   106   107   114   1     1
 23. 121   127   128   132   1     1
 24. 141   148   149   149   1     1
 25. 161   169   170   167   1     1
 26. 181   190   191   184   1     1
 27. 191   211   212   192   1     1
 28. *VERTICAL MEMBER (START WITH 301)
 29. 201   2     23    210   1     21
 30. R     1     10    1
 31. 221   4     25    229   1     21
 32. R     1     10    1
 33. 241   6     27    248   1     21
 34. R     2     10    1
 35. 271   9     30    277   1     21
 36. R     1     10    1
 37. 291   11    32    296   1     21
 38. R     2     10    1
 39. 321   14    35    325   1     21
 40. R     1     10    1
 41. 341   16    37    344   1     21
 42. R     2     10    1

 43. 371   19    40    373   1     21
 44. R     1     10    1
 45. 391   21    42    392   1     21
 47. MEM PRO
 48. 1     TO    20    PRI   YD    1.500  ZD    0.25  IX    1E-06
 49. 21    TO    40    PRI   YD    0.250  ZD    0.295 IX    1E-06
 50. 41    TO    60    PRI   YD    0.250  ZD    0.295 IX    1E-06
 51. 61    TO    79    PRI   YD    0.250  ZD    0.295 IX    1E-06
 52. 81    TO    97    PRI   YD    0.250  ZD    0.295 IX    1E-06
 53. 101   TO    114   PRI   YD    0.250  ZD    0.295 IX    1E-06
 54. 121   TO    132   PRI   YD    0.250  ZD    0.295 IX    1E-06
 55. 141   TO    149   PRI   YD    0.250  ZD    0.295 IX    1E-06
 56. 161   TO    167   PRI   YD    0.250  ZD    0.295 IX    1E-06
 57. 181   TO    184   PRI   YD    0.250  ZD    0.295 IX    1E-06
 58. 191   TO    192   PRI   YD    0.250  ZD    0.295 IX    1E-06
 59. *VERTICAL
```

```
 60. 201   TO    210   PRI   YD    0.250  ZD    0.335 IX    1E-06
 61. 211   TO    220   PRI   YD    0.250  ZD    0.335 IX    1E-06
 62. 221   TO    229   PRI   YD    0.250  ZD    0.335 IX    1E-06
 63. 231   TO    239   PRI   YD    0.250  ZD    0.335 IX    1E-06
 64. 241   TO    248   PRI   YD    0.250  ZD    0.335 IX    1E-06
 65. 251   TO    258   PRI   YD    0.250  ZD    0.335 IX    1E-06
 66. 261   TO    268   PRI   YD    0.250  ZD    0.335 IX    1E-06
 67. 271   TO    277   PRI   YD    0.250  ZD    0.335 IX    1E-06
 68. 281   TO    287   PRI   YD    0.250  ZD    0.335 IX    1E-06
 69. 291   TO    296   PRI   YD    0.250  ZD    0.335 IX    1E-06
 70. 301   TO    306   PRI   YD    0.250  ZD    0.335 IX    1E-06
 71. 311   TO    316   PRI   YD    0.250  ZD    0.335 IX    1E-06
 72. 321   TO    325   PRI   YD    0.250  ZD    0.335 IX    1E-06
 73. 331   TO    335   PRI   YD    0.250  ZD    0.335 IX    1E-06
 74. 341   TO    344   PRI   YD    0.250  ZD    0.335 IX    1E-06
 75. 351   TO    354   PRI   YD    0.250  ZD    0.335 IX    1E-06
 76. 361   TO    364   PRI   YD    0.250  ZD    0.335 IX    1E-06
 77. 371   TO    373   PRI   YD    0.250  ZD    0.335 IX    1E-06
 78. 381   TO    383   PRI   YD    0.250  ZD    0.335 IX    1E-06
 79. 391   TO    392   PRI   YD    0.250  ZD    0.335 IX    1E-06
 81. CONSTANTS
 82. E      CONC
 83. DEN    CONC
 85. SUPPORT
 86. 1      22    43    64    85    106   127   148   169   190   211   FIXED
 87. 2      TO    21                              FIXED       BUT   MZ    FY
 89. LOAD 1 : EARTH PRESSURE
 90. JOINT LOAD
 91. 2      FY     -7.36
 92. 3      FY     -7.15
 93. 4      FY     -6.95
 94. 5      FY     -6.75
 95. 6      FY     -6.54
 96. 7      FY     -6.34
 97. 8      FY     -6.13
 98. 9      FY     -5.93
 99. 10     FY     -5.72
100. 11     FY      0.00
101. 12     FY      0.00
102. 13     FY      0.00
103. 14     FY      0.00
104. 15     FY      0.00
105. 16     FY      0.00
106. 17     FY      0.00
107. 18     FY      0.00
108. 19     FY      0.00
109. 20     FY      0.00
110. 21     FY      0.00
111. 23     FY     -4.62
112. 24     FY     -4.46
113. 25     FY     -4.31
114. 26     FY     -4.16
115. 27     FY     -4.01
116. 28     FY     -3.86
117. 29     FY     -3.71
118. 30     FY     -3.55
119. 31     FY     -3.40
120. 32     FY      0.00
121. 33     FY      0.00
122. 34     FY      0.00
123. 35     FY      0.00
124. 36     FY      0.00
125. 37     FY      0.00
126. 38     FY      0.00
127. 39     FY      0.00
128. 40     FY      0.00
129. 41     FY      0.00
130. 42     FY      0.00
131. 44     FY     -3.95
132. 45     FY     -3.80
```

| | | |
|---|---|---|
| 133. 46 | FY | -3.65 |
| 134. 47 | FY | -3.50 |
| 135. 48 | FY | -3.35 |
| 136. 49 | FY | -3.19 |
| 137. 50 | FY | -3.04 |
| 138. 51 | FY | -2.89 |
| 139. 52 | FY | -2.74 |
| 140. 53 | FY | 0.00 |
| 141. 54 | FY | 0.00 |
| 142. 55 | FY | 0.00 |
| 143. 56 | FY | 0.00 |
| 144. 57 | FY | 0.00 |
| 145. 58 | FY | 0.00 |
| 146. 59 | FY | 0.00 |
| 147. 60 | FY | 0.00 |
| 148. 61 | FY | 0.00 |
| 149. 62 | FY | 0.00 |
| 150. 63 | FY | 0.00 |
| 151. 65 | FY | -3.29 |
| 152. 66 | FY | -3.14 |
| 153. 67 | FY | -2.99 |
| 154. 68 | FY | -2.83 |
| 155. 69 | FY | -2.68 |
| 156. 70 | FY | -2.53 |
| 157. 71 | FY | -2.38 |
| 158. 72 | FY | -2.23 |
| 159. 73 | FY | -2.08 |
| 160. 74 | FY | 0.00 |
| 161. 75 | FY | 0.00 |
| 162. 76 | FY | 0.00 |
| 163. 77 | FY | 0.00 |
| 164. 78 | FY | 0.00 |
| 165. 79 | FY | 0.00 |
| 166. 80 | FY | 0.00 |
| 167. 81 | FY | 0.00 |
| 168. 82 | FY | 0.00 |
| 169. 83 | FY | 0.00 |
| 170. 86 | FY | -2.63 |
| 171. 87 | FY | -2.47 |
| 172. 88 | FY | -2.32 |
| 173. 89 | FY | -2.17 |
| 174. 90 | FY | -2.02 |
| 175. 91 | FY | -1.87 |
| 176. 92 | FY | -1.72 |
| 177. 93 | FY | -1.56 |
| 178. 94 | FY | -1.41 |
| 179. 95 | FY | 0.00 |
| 180. 96 | FY | 0.00 |
| 181. 97 | FY | 0.00 |
| 182. 98 | FY | 0.00 |
| 183. 99 | FY | 0.00 |
| 184. 100 | FY | 0.00 |
| 185. 101 | FY | 0.00 |
| 186. 102 | FY | 0.00 |
| 187. 107 | FY | -1.96 |
| 188. 108 | FY | -1.81 |
| 189. 109 | FY | -1.66 |
| 190. 110 | FY | -1.51 |
| 191. 111 | FY | -1.36 |
| 192. 112 | FY | -1.20 |
| 193. 113 | FY | -1.05 |
| 194. 114 | FY | -0.90 |
| 195. 115 | FY | -0.75 |
| 196. 116 | FY | 0.00 |
| 197. 117 | FY | 0.00 |
| 198. 118 | FY | 0.00 |
| 199. 119 | FY | 0.00 |
| 200. 120 | FY | 0.00 |
| 201. 128 | FY | -1.37 |
| 202. 129 | FY | -1.21 |

| | | | |
|---|---|---|---|
| 203. | 130 | FY | -1.06 |
| 204. | 131 | FY | -0.91 |
| 205. | 132 | FY | -0.76 |
| 206. | 133 | FY | -0.61 |
| 207. | 134 | FY | -0.46 |
| 208. | 135 | FY | -0.30 |
| 209. | 136 | FY | -0.15 |
| 210. | 137 | FY | 0.00 |
| 211. | 138 | FY | 0.00 |
| 212. | 139 | FY | 0.00 |
| 213. | 149 | FY | -0.99 |
| 214. | 150 | FY | -0.83 |
| 215. | 151 | FY | -0.68 |
| 216. | 152 | FY | -0.53 |
| 217. | 153 | FY | -0.38 |
| 218. | 154 | FY | -0.23 |
| 219. | 155 | FY | -0.08 |
| 220. | 156 | FY | 0.00 |
| 221. | 157 | FY | 0.00 |
| 222. | 170 | FY | -0.61 |
| 223. | 171 | FY | -0.46 |
| 224. | 172 | FY | -0.30 |
| 225. | 173 | FY | -0.15 |
| 226. | 174 | FY | 0.00 |
| 227. | 175 | FY | 0.00 |
| 228. | 176 | FY | 0.00 |
| 229. | 191 | FY | -0.23 |
| 230. | 192 | FY | -0.08 |
| 231. | 193 | FY | 0.00 |
| 232. | 194 | FY | 0.00 |
| 233. | 212 | FY | 0.00 |
| 234. | 213 | FY | 0.00 |

236. PER ANA

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

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 155/ 268/ 31
ORIGINAL/FINAL BAND-WIDTH = 21/ 9
TOTAL PRIMARY LOAD CASES = 1, TOTAL DEGREES OF FREEDOM = 784
SIZE OF STIFFNESS MATRIX = 43904 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 12.59/ 243.8 MB, EXMEM = 1965.6 MB

++ Processing Element Stiffness Matrix. 15: 9:31
++ Processing Global Stiffness Matrix. 15: 9:31
++ Processing Triangular Factorization. 15: 9:31
++ Calculating Joint Displacements. 15: 9:31
++ Calculating Member Forces. 15: 9:31

237. PRINT MEM FORCES

MEMBER END FORCES STRUCTURE TYPE = SPACE

ALL UNITS ARE -- KNS METE

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 1 | .00 | 139.58 | .00 | .00 | .00 | 253.27 |
| | | 2 | .00 | -139.58 | .00 | .00 | .00 | -206.51 |
| 2 | 1 | 2 | .00 | 131.29 | .00 | .00 | .00 | 206.51 |
| | | 3 | .00 | -131.29 | .00 | .00 | .00 | -162.52 |
| 3 | 1 | 3 | .00 | 118.08 | .00 | .00 | .00 | 162.52 |
| | | 4 | .00 | -118.08 | .00 | .00 | .00 | -122.97 |
| 4 | 1 | 4 | .00 | 102.01 | .00 | .00 | .00 | 122.96 |
| | | 5 | .00 | -102.01 | .00 | .00 | .00 | -88.79 |
| 5 | 1 | 5 | .00 | 84.69 | .00 | .00 | .00 | 88.79 |
| | | 6 | .00 | -84.69 | .00 | .00 | .00 | -60.42 |
| 6 | 1 | 6 | .00 | 67.09 | .00 | .00 | .00 | 60.42 |
| | | 7 | .00 | -67.09 | .00 | .00 | .00 | -37.94 |
| 7 | 1 | 7 | .00 | 49.88 | .00 | .00 | .00 | 37.94 |
| | | 8 | .00 | -49.88 | .00 | .00 | .00 | -21.23 |
| 8 | 1 | 8 | .00 | 33.63 | .00 | .00 | .00 | 21.23 |
| | | 9 | .00 | -33.63 | .00 | .00 | .00 | -9.97 |
| 9 | 1 | 9 | .00 | 18.89 | .00 | .00 | .00 | 9.97 |
| | | 10 | .00 | -18.89 | .00 | .00 | .00 | -3.64 |
| 10 | 1 | 10 | .00 | 6.58 | .00 | .00 | .00 | 3.64 |
| | | 11 | .00 | -6.58 | .00 | .00 | .00 | -1.43 |
| 11 | 1 | 11 | .00 | 3.19 | .00 | .00 | .00 | 1.44 |
| | | 12 | .00 | -3.19 | .00 | .00 | .00 | -.37 |
| 12 | 1 | 12 | .00 | 1.66 | .00 | .00 | .00 | .37 |
| | | 13 | .00 | -1.66 | .00 | .00 | .00 | .19 |
| 13 | 1 | 13 | .00 | .90 | .00 | .00 | .00 | -.19 |
| | | 14 | .00 | -.90 | .00 | .00 | .00 | .49 |
| 14 | 1 | 14 | .00 | .38 | .00 | .00 | .00 | -.49 |
| | | 15 | .00 | -.38 | .00 | .00 | .00 | .62 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 15 | 1 | 15 | .00 | -.01 | .00 | .00 | .00 | -.62 |
| | | 16 | .00 | .01 | .00 | .00 | .00 | .62 |
| 16 | 1 | 16 | .00 | -.29 | .00 | .00 | .00 | -.62 |
| | | 17 | .00 | .29 | .00 | .00 | .00 | .52 |
| 17 | 1 | 17 | .00 | -.44 | .00 | .00 | .00 | -.52 |
| | | 18 | .00 | .44 | .00 | .00 | .00 | .37 |
| 18 | 1 | 18 | .00 | -.48 | .00 | .00 | .00 | -.37 |
| | | 19 | .00 | .48 | .00 | .00 | .00 | .21 |
| 19 | 1 | 19 | .00 | -.38 | .00 | .00 | .00 | -.21 |
| | | 20 | .00 | .38 | .00 | .00 | .00 | .08 |
| 20 | 1 | 20 | .00 | -.25 | .00 | .00 | .00 | -.08 |
| | | 21 | .00 | .25 | .00 | .00 | .00 | .00 |
| 21 | 1 | 22 | .00 | 6.83 | .00 | .00 | .00 | 3.68 |
| | | 23 | .00 | -6.83 | .00 | .00 | .00 | -1.39 |
| 22 | 1 | 23 | .00 | 2.12 | .00 | .00 | .00 | 1.39 |
| | | 24 | .00 | -2.12 | .00 | .00 | .00 | -.68 |
| 23 | 1 | 24 | .00 | .82 | .00 | .00 | .00 | .68 |
| | | 25 | .00 | -.82 | .00 | .00 | .00 | -.41 |
| 24 | 1 | 25 | .00 | .53 | .00 | .00 | .00 | .41 |
| | | 26 | .00 | -.53 | .00 | .00 | .00 | -.23 |
| 25 | 1 | 26 | .00 | .41 | .00 | .00 | .00 | .23 |
| | | 27 | .00 | -.41 | .00 | .00 | .00 | -.10 |
| 26 | 1 | 27 | .00 | .31 | .00 | .00 | .00 | .10 |
| | | 28 | .00 | -.31 | .00 | .00 | .00 | .01 |
| 27 | 1 | 28 | .00 | .24 | .00 | .00 | .00 | -.01 |
| | | 29 | .00 | -.24 | .00 | .00 | .00 | .09 |
| 28 | 1 | 29 | .00 | .18 | .00 | .00 | .00 | -.09 |
| | | 30 | .00 | -.18 | .00 | .00 | .00 | .15 |
| 29 | 1 | 30 | .00 | .04 | .00 | .00 | .00 | -.15 |
| | | 31 | .00 | -.04 | .00 | .00 | .00 | .16 |
| 30 | 1 | 31 | .00 | -.75 | .00 | .00 | .00 | -.16 |
| | | 32 | .00 | .75 | .00 | .00 | .00 | -.09 |
| 31 | 1 | 32 | .00 | .02 | .00 | .00 | .00 | .09 |
| | | 33 | .00 | -.02 | .00 | .00 | .00 | -.08 |
| 32 | 1 | 33 | .00 | .11 | .00 | .00 | .00 | .08 |
| | | 34 | .00 | -.11 | .00 | .00 | .00 | -.05 |
| 33 | 1 | 34 | .00 | .08 | .00 | .00 | .00 | .05 |
| | | 35 | .00 | -.08 | .00 | .00 | .00 | -.02 |
| 34 | 1 | 35 | .00 | .04 | .00 | .00 | .00 | .02 |
| | | 36 | .00 | -.04 | .00 | .00 | .00 | -.01 |
| 35 | 1 | 36 | .00 | -.02 | .00 | .00 | .00 | .01 |
| | | 37 | .00 | .02 | .00 | .00 | .00 | -.02 |
| 36 | 1 | 37 | .00 | -.03 | .00 | .00 | .00 | .02 |
| | | 38 | .00 | .03 | .00 | .00 | .00 | -.03 |
| 37 | 1 | 38 | .00 | .03 | .00 | .00 | .00 | .03 |
| | | 39 | .00 | -.03 | .00 | .00 | .00 | -.02 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 38 | 1 | 39 | .00 | -.04 | .00 | .00 | .00 | .02 |
| | | 40 | .00 | .04 | .00 | .00 | .00 | -.03 |
| 39 | 1 | 40 | .00 | .05 | .00 | .00 | .00 | .03 |
| | | 41 | .00 | -.05 | .00 | .00 | .00 | -.01 |
| 40 | 1 | 41 | .00 | .04 | .00 | .00 | .00 | .01 |
| | | 42 | .00 | -.04 | .00 | .00 | .00 | .00 |
| 41 | 1 | 43 | .00 | 7.12 | .00 | .00 | .00 | 4.35 |
| | | 44 | .00 | -7.12 | .00 | .00 | .00 | -1.97 |
| 42 | 1 | 44 | .00 | 3.72 | .00 | .00 | .00 | 1.97 |
| | | 45 | .00 | -3.72 | .00 | .00 | .00 | -.72 |
| 43 | 1 | 45 | .00 | 1.59 | .00 | .00 | .00 | .72 |
| | | 46 | .00 | -1.59 | .00 | .00 | .00 | -.19 |
| 44 | 1 | 46 | .00 | .70 | .00 | .00 | .00 | .19 |
| | | 47 | .00 | -.70 | .00 | .00 | .00 | .05 |
| 45 | 1 | 47 | .00 | .38 | .00 | .00 | .00 | -.05 |
| | | 48 | .00 | -.38 | .00 | .00 | .00 | .17 |
| 46 | 1 | 48 | .00 | .24 | .00 | .00 | .00 | -.17 |
| | | 49 | .00 | -.24 | .00 | .00 | .00 | .25 |
| 47 | 1 | 49 | .00 | .16 | .00 | .00 | .00 | -.25 |
| | | 50 | .00 | -.16 | .00 | .00 | .00 | .31 |
| 48 | 1 | 50 | .00 | .07 | .00 | .00 | .00 | -.31 |
| | | 51 | .00 | -.07 | .00 | .00 | .00 | .33 |
| 49 | 1 | 51 | .00 | -.22 | .00 | .00 | .00 | -.33 |
| | | 52 | .00 | .22 | .00 | .00 | .00 | .26 |
| 50 | 1 | 52 | .00 | -1.11 | .00 | .00 | .00 | -.26 |
| | | 53 | .00 | 1.11 | .00 | .00 | .00 | -.11 |
| 51 | 1 | 53 | .00 | -.14 | .00 | .00 | .00 | .11 |
| | | 54 | .00 | .14 | .00 | .00 | .00 | -.16 |
| 52 | 1 | 54 | .00 | .10 | .00 | .00 | .00 | .16 |
| | | 55 | .00 | -.10 | .00 | .00 | .00 | -.13 |
| 53 | 1 | 55 | .00 | .12 | .00 | .00 | .00 | .13 |
| | | 56 | .00 | -.12 | .00 | .00 | .00 | -.09 |
| 54 | 1 | 56 | .00 | .11 | .00 | .00 | .00 | .09 |
| | | 57 | .00 | -.11 | .00 | .00 | .00 | -.05 |
| 55 | 1 | 57 | .00 | -.08 | .00 | .00 | .00 | .05 |
| | | 58 | .00 | .08 | .00 | .00 | .00 | -.08 |
| 56 | 1 | 58 | .00 | -.10 | .00 | .00 | .00 | .08 |
| | | 59 | .00 | .10 | .00 | .00 | .00 | -.11 |
| 57 | 1 | 59 | .00 | .09 | .00 | .00 | .00 | .11 |
| | | 60 | .00 | -.09 | .00 | .00 | .00 | -.08 |
| 58 | 1 | 60 | .00 | -.01 | .00 | .00 | .00 | .08 |
| | | 61 | .00 | .01 | .00 | .00 | .00 | -.08 |
| 59 | 1 | 61 | .00 | .04 | .00 | .00 | .00 | .08 |
| | | 62 | .00 | -.04 | .00 | .00 | .00 | -.07 |
| 60 | 1 | 62 | .00 | .21 | .00 | .00 | .00 | .07 |
| | | 63 | .00 | -.21 | .00 | .00 | .00 | .00 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 61 | 1 | 64 | .00 | 7.50 | .00 | .00 | .00 | 4.96 |
| | | 65 | .00 | -7.50 | .00 | .00 | .00 | -2.45 |
| 62 | 1 | 65 | .00 | 4.62 | .00 | .00 | .00 | 2.45 |
| | | 66 | .00 | -4.62 | .00 | .00 | .00 | -.90 |
| 63 | 1 | 66 | .00 | 2.43 | .00 | .00 | .00 | .90 |
| | | 67 | .00 | -2.43 | .00 | .00 | .00 | -.09 |
| 64 | 1 | 67 | .00 | 1.11 | .00 | .00 | .00 | .09 |
| | | 68 | .00 | -1.11 | .00 | .00 | .00 | .28 |
| 65 | 1 | 68 | .00 | .48 | .00 | .00 | .00 | -.28 |
| | | 69 | .00 | -.48 | .00 | .00 | .00 | .44 |
| 66 | 1 | 69 | .00 | .22 | .00 | .00 | .00 | -.44 |
| | | 70 | .00 | -.22 | .00 | .00 | .00 | .52 |
| 67 | 1 | 70 | .00 | .10 | .00 | .00 | .00 | -.52 |
| | | 71 | .00 | -.10 | .00 | .00 | .00 | .55 |
| 68 | 1 | 71 | .00 | -.12 | .00 | .00 | .00 | -.55 |
| | | 72 | .00 | .12 | .00 | .00 | .00 | .51 |
| 69 | 1 | 72 | .00 | -.47 | .00 | .00 | .00 | -.51 |
| | | 73 | .00 | .47 | .00 | .00 | .00 | .35 |
| 70 | 1 | 73 | .00 | -1.09 | .00 | .00 | .00 | -.35 |
| | | 74 | .00 | 1.09 | .00 | .00 | .00 | -.01 |
| 71 | 1 | 74 | .00 | -.29 | .00 | .00 | .00 | .01 |
| | | 75 | .00 | .29 | .00 | .00 | .00 | -.11 |
| 72 | 1 | 75 | .00 | -.11 | .00 | .00 | .00 | .11 |
| | | 76 | .00 | .11 | .00 | .00 | .00 | -.14 |
| 73 | 1 | 76 | .00 | -.03 | .00 | .00 | .00 | .15 |
| | | 77 | .00 | .03 | .00 | .00 | .00 | -.15 |
| 74 | 1 | 77 | .00 | .02 | .00 | .00 | .00 | .15 |
| | | 78 | .00 | -.02 | .00 | .00 | .00 | -.15 |
| 75 | 1 | 78 | .00 | -.11 | .00 | .00 | .00 | .15 |
| | | 79 | .00 | .11 | .00 | .00 | .00 | -.18 |
| 76 | 1 | 79 | .00 | -.03 | .00 | .00 | .00 | .18 |
| | | 80 | .00 | .03 | .00 | .00 | .00 | -.19 |
| 77 | 1 | 80 | .00 | -.24 | .00 | .00 | .00 | .19 |
| | | 81 | .00 | .24 | .00 | .00 | .00 | -.28 |
| 78 | 1 | 81 | .00 | .53 | .00 | .00 | .00 | .28 |
| | | 82 | .00 | -.53 | .00 | .00 | .00 | -.10 |
| 79 | 1 | 82 | .00 | .29 | .00 | .00 | .00 | .10 |
| | | 83 | .00 | -.29 | .00 | .00 | .00 | .00 |
| 81 | 1 | 85 | .00 | 7.39 | .00 | .00 | .00 | 5.27 |
| | | 86 | .00 | -7.39 | .00 | .00 | .00 | -2.79 |
| 82 | 1 | 86 | .00 | 4.96 | .00 | .00 | .00 | 2.79 |
| | | 87 | .00 | -4.96 | .00 | .00 | .00 | -1.13 |
| 83 | 1 | 87 | .00 | 2.99 | .00 | .00 | .00 | 1.13 |
| | | 88 | .00 | -2.99 | .00 | .00 | .00 | -.13 |
| 84 | 1 | 88 | .00 | 1.54 | .00 | .00 | .00 | .13 |
| | | 89 | .00 | -1.54 | .00 | .00 | .00 | .39 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 85 | 1 | 89 | .00 | .68 | .00 | .00 | .00 | -.39 |
| | | 90 | .00 | -.68 | .00 | .00 | .00 | .62 |
| 86 | 1 | 90 | .00 | .26 | .00 | .00 | .00 | -.62 |
| | | 91 | .00 | -.26 | .00 | .00 | .00 | .70 |
| 87 | 1 | 91 | .00 | .13 | .00 | .00 | .00 | -.70 |
| | | 92 | .00 | -.13 | .00 | .00 | .00 | .75 |
| 88 | 1 | 92 | .00 | -.10 | .00 | .00 | .00 | -.75 |
| | | 93 | .00 | .10 | .00 | .00 | .00 | .71 |
| 89 | 1 | 93 | .00 | -.67 | .00 | .00 | .00 | -.71 |
| | | 94 | .00 | .67 | .00 | .00 | .00 | .49 |
| 90 | 1 | 94 | .00 | -.80 | .00 | .00 | .00 | -.49 |
| | | 95 | .00 | .80 | .00 | .00 | .00 | .22 |
| 91 | 1 | 95 | .00 | -.41 | .00 | .00 | .00 | -.22 |
| | | 96 | .00 | .41 | .00 | .00 | .00 | .08 |
| 92 | 1 | 96 | .00 | -.42 | .00 | .00 | .00 | -.08 |
| | | 97 | .00 | .42 | .00 | .00 | .00 | -.06 |
| 93 | 1 | 97 | .00 | -.27 | .00 | .00 | .00 | .06 |
| | | 98 | .00 | .27 | .00 | .00 | .00 | -.15 |
| 94 | 1 | 98 | .00 | -.78 | .00 | .00 | .00 | .15 |
| | | 99 | .00 | .78 | .00 | .00 | .00 | -.41 |
| 95 | 1 | 99 | .00 | .22 | .00 | .00 | .00 | .41 |
| | | 100 | .00 | -.22 | .00 | .00 | .00 | -.34 |
| 96 | 1 | 100 | .00 | .44 | .00 | .00 | .00 | .34 |
| | | 101 | .00 | -.44 | .00 | .00 | .00 | -.19 |
| 97 | 1 | 101 | .00 | .56 | .00 | .00 | .00 | .19 |
| | | 102 | .00 | -.56 | .00 | .00 | .00 | .00 |
| 101 | 1 | 106 | .00 | 6.76 | .00 | .00 | .00 | 5.24 |
| | | 107 | .00 | -6.76 | .00 | .00 | .00 | -2.98 |
| 102 | 1 | 107 | .00 | 4.80 | .00 | .00 | .00 | 2.98 |
| | | 108 | .00 | -4.80 | .00 | .00 | .00 | -1.37 |
| 103 | 1 | 108 | .00 | 3.19 | .00 | .00 | .00 | 1.37 |
| | | 109 | .00 | -3.19 | .00 | .00 | .00 | -.30 |
| 104 | 1 | 109 | .00 | 1.86 | .00 | .00 | .00 | .30 |
| | | 110 | .00 | -1.86 | .00 | .00 | .00 | .32 |
| 105 | 1 | 110 | .00 | .90 | .00 | .00 | .00 | -.32 |
| | | 111 | .00 | -.90 | .00 | .00 | .00 | .63 |
| 106 | 1 | 111 | .00 | .41 | .00 | .00 | .00 | -.63 |
| | | 112 | .00 | -.41 | .00 | .00 | .00 | .76 |
| 107 | 1 | 112 | .00 | .22 | .00 | .00 | .00 | -.76 |
| | | 113 | .00 | -.22 | .00 | .00 | .00 | .84 |
| 108 | 1 | 113 | .00 | .38 | .00 | .00 | .00 | -.84 |
| | | 114 | .00 | -.38 | .00 | .00 | .00 | .97 |
| 109 | 1 | 114 | .00 | -.60 | .00 | .00 | .00 | -.97 |
| | | 115 | .00 | .60 | .00 | .00 | .00 | .77 |
| 110 | 1 | 115 | .00 | -.60 | .00 | .00 | .00 | -.77 |
| | | 116 | .00 | .60 | .00 | .00 | .00 | .56 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 111 | 1 | 116 | .00 | -.84 | .00 | .00 | .00 | -.56 |
| | | 117 | .00 | .84 | .00 | .00 | .00 | .28 |
| 112 | 1 | 117 | .00 | -.28 | .00 | .00 | .00 | -.28 |
| | | 118 | .00 | .28 | .00 | .00 | .00 | .19 |
| 113 | 1 | 118 | .00 | -.80 | .00 | .00 | .00 | -.19 |
| | | 119 | .00 | .80 | .00 | .00 | .00 | -.08 |
| 114 | 1 | 119 | .00 | .23 | .00 | .00 | .00 | .08 |
| | | 120 | .00 | -.23 | .00 | .00 | .00 | .00 |
| 121 | 1 | 127 | .00 | 5.78 | .00 | .00 | .00 | 4.94 |
| | | 128 | .00 | -5.78 | .00 | .00 | .00 | -3.00 |
| 122 | 1 | 128 | .00 | 4.26 | .00 | .00 | .00 | 3.00 |
| | | 129 | .00 | -4.26 | .00 | .00 | .00 | -1.57 |
| 123 | 1 | 129 | .00 | 2.92 | .00 | .00 | .00 | 1.58 |
| | | 130 | .00 | -2.92 | .00 | .00 | .00 | -.60 |
| 124 | 1 | 130 | .00 | 2.07 | .00 | .00 | .00 | .60 |
| | | 131 | .00 | -2.07 | .00 | .00 | .00 | .10 |
| 125 | 1 | 131 | .00 | 1.00 | .00 | .00 | .00 | -.10 |
| | | 132 | .00 | -1.00 | .00 | .00 | .00 | .43 |
| 126 | 1 | 132 | .00 | .88 | .00 | .00 | .00 | -.43 |
| | | 133 | .00 | -.88 | .00 | .00 | .00 | .73 |
| 127 | 1 | 133 | .00 | .36 | .00 | .00 | .00 | -.73 |
| | | 134 | .00 | -.36 | .00 | .00 | .00 | .85 |
| 128 | 1 | 134 | .00 | .72 | .00 | .00 | .00 | -.85 |
| | | 135 | .00 | -.72 | .00 | .00 | .00 | 1.09 |
| 129 | 1 | 135 | .00 | 1.54 | .00 | .00 | .00 | -1.09 |
| | | 136 | .00 | -1.54 | .00 | .00 | .00 | 1.61 |
| 130 | 1 | 136 | .00 | -2.23 | .00 | .00 | .00 | -1.61 |
| | | 137 | .00 | 2.23 | .00 | .00 | .00 | .86 |
| 131 | 1 | 137 | .00 | -1.52 | .00 | .00 | .00 | -.86 |
| | | 138 | .00 | 1.52 | .00 | .00 | .00 | .35 |
| 132 | 1 | 138 | .00 | -1.06 | .00 | .00 | .00 | -.35 |
| | | 139 | .00 | 1.06 | .00 | .00 | .00 | .00 |
| 141 | 1 | 148 | .00 | 4.46 | .00 | .00 | .00 | 4.40 |
| | | 149 | .00 | -4.46 | .00 | .00 | .00 | -2.91 |
| 142 | 1 | 149 | .00 | 3.60 | .00 | .00 | .00 | 2.91 |
| | | 150 | .00 | -3.60 | .00 | .00 | .00 | -1.70 |
| 143 | 1 | 150 | .00 | 2.01 | .00 | .00 | .00 | 1.70 |
| | | 151 | .00 | -2.01 | .00 | .00 | .00 | -1.03 |
| 144 | 1 | 151 | .00 | 2.11 | .00 | .00 | .00 | 1.03 |
| | | 152 | .00 | -2.11 | .00 | .00 | .00 | -.32 |
| 145 | 1 | 152 | .00 | 1.14 | .00 | .00 | .00 | .32 |
| | | 153 | .00 | -1.14 | .00 | .00 | .00 | .06 |
| 146 | 1 | 153 | .00 | 1.55 | .00 | .00 | .00 | -.06 |
| | | 154 | .00 | -1.55 | .00 | .00 | .00 | .58 |
| 147 | 1 | 154 | .00 | 1.69 | .00 | .00 | .00 | -.58 |
| | | 155 | .00 | -1.69 | .00 | .00 | .00 | 1.14 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 148 | 1 | 155 | .00 | -1.14 | .00 | .00 | .00 | -1.14 |
| | | 156 | .00 | 1.14 | .00 | .00 | .00 | .76 |
| 149 | 1 | 156 | .00 | -2.26 | .00 | .00 | .00 | -.76 |
| | | 157 | .00 | 2.26 | .00 | .00 | .00 | .00 |
| 161 | 1 | 169 | .00 | 2.55 | .00 | .00 | .00 | 3.62 |
| | | 170 | .00 | -2.55 | .00 | .00 | .00 | -2.76 |
| 162 | 1 | 170 | .00 | 2.85 | .00 | .00 | .00 | 2.76 |
| | | 171 | .00 | -2.85 | .00 | .00 | .00 | -1.81 |
| 163 | 1 | 171 | .00 | 1.23 | .00 | .00 | .00 | 1.81 |
| | | 172 | .00 | -1.23 | .00 | .00 | .00 | -1.39 |
| 164 | 1 | 172 | .00 | .30 | .00 | .00 | .00 | 1.39 |
| | | 173 | .00 | -.30 | .00 | .00 | .00 | -1.29 |
| 165 | 1 | 173 | .00 | 3.43 | .00 | .00 | .00 | 1.30 |
| | | 174 | .00 | -3.43 | .00 | .00 | .00 | -.15 |
| 166 | 1 | 174 | .00 | 1.06 | .00 | .00 | .00 | .15 |
| | | 175 | .00 | -1.06 | .00 | .00 | .00 | .21 |
| 167 | 1 | 175 | .00 | -.60 | .00 | .00 | .00 | -.20 |
| | | 176 | .00 | .60 | .00 | .00 | .00 | .00 |
| 181 | 1 | 190 | .00 | 1.10 | .00 | .00 | .00 | 2.69 |
| | | 191 | .00 | -1.10 | .00 | .00 | .00 | -2.32 |
| 182 | 1 | 191 | .00 | -.70 | .00 | .00 | .00 | 2.32 |
| | | 192 | .00 | .70 | .00 | .00 | .00 | -2.56 |
| 183 | 1 | 192 | .00 | 4.27 | .00 | .00 | .00 | 2.56 |
| | | 193 | .00 | -4.27 | .00 | .00 | .00 | -1.13 |
| 184 | 1 | 193 | .00 | 3.38 | .00 | .00 | .00 | 1.13 |
| | | 194 | .00 | -3.38 | .00 | .00 | .00 | .00 |
| 191 | 1 | 211 | .00 | 2.88 | .00 | .00 | .00 | 2.12 |
| | | 212 | .00 | -2.88 | .00 | .00 | .00 | -1.16 |
| 192 | 1 | 212 | .00 | 3.44 | .00 | .00 | .00 | 1.16 |
| | | 213 | .00 | -3.44 | .00 | .00 | .00 | .00 |
| 201 | 1 | 2 | .00 | .93 | .00 | .00 | .00 | .52 |
| | | 23 | .00 | -.93 | .00 | .00 | .00 | -.24 |
| 202 | 1 | 23 | .00 | 1.02 | .00 | .00 | .00 | .24 |
| | | 44 | .00 | -1.02 | .00 | .00 | .00 | .06 |
| 203 | 1 | 44 | .00 | .48 | .00 | .00 | .00 | -.06 |
| | | 65 | .00 | -.48 | .00 | .00 | .00 | .21 |
| 204 | 1 | 65 | .00 | .07 | .00 | .00 | .00 | -.21 |
| | | 86 | .00 | -.07 | .00 | .00 | .00 | .23 |
| 205 | 1 | 86 | .00 | -.12 | .00 | .00 | .00 | -.23 |
| | | 107 | .00 | .12 | .00 | .00 | .00 | .19 |
| 206 | 1 | 107 | .00 | -.13 | .00 | .00 | .00 | -.19 |
| | | 128 | .00 | .13 | .00 | .00 | .00 | .15 |
| 207 | 1 | 128 | .00 | .03 | .00 | .00 | .00 | -.15 |
| | | 149 | .00 | -.03 | .00 | .00 | .00 | .16 |
| 208 | 1 | 149 | .00 | -.10 | .00 | .00 | .00 | -.16 |
| | | 170 | .00 | .10 | .00 | .00 | .00 | .13 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 209 | 1 | 170 | .00 | -1.01 | .00 | .00 | .00 | -.13 |
| | | 191 | .00 | 1.01 | .00 | .00 | .00 | -.16 |
| 210 | 1 | 191 | .00 | .57 | .00 | .00 | .00 | .17 |
| | | 212 | .00 | -.57 | .00 | .00 | .00 | .00 |
| 211 | 1 | 3 | .00 | 6.06 | .00 | .00 | .00 | 2.40 |
| | | 24 | .00 | -6.06 | .00 | .00 | .00 | -.61 |
| 212 | 1 | 24 | .00 | 2.90 | .00 | .00 | .00 | .61 |
| | | 45 | .00 | -2.90 | .00 | .00 | .00 | .25 |
| 213 | 1 | 45 | .00 | 1.23 | .00 | .00 | .00 | -.25 |
| | | 66 | .00 | -1.23 | .00 | .00 | .00 | .61 |
| 214 | 1 | 66 | .00 | .27 | .00 | .00 | .00 | -.61 |
| | | 87 | .00 | -.27 | .00 | .00 | .00 | .69 |
| 215 | 1 | 87 | .00 | -.24 | .00 | .00 | .00 | -.69 |
| | | 108 | .00 | .24 | .00 | .00 | .00 | .62 |
| 216 | 1 | 108 | .00 | -.43 | .00 | .00 | .00 | -.62 |
| | | 129 | .00 | .43 | .00 | .00 | .00 | .49 |
| 217 | 1 | 129 | .00 | -.31 | .00 | .00 | .00 | -.49 |
| | | 150 | .00 | .31 | .00 | .00 | .00 | .40 |
| 218 | 1 | 150 | .00 | .45 | .00 | .00 | .00 | -.40 |
| | | 171 | .00 | -.45 | .00 | .00 | .00 | .54 |
| 219 | 1 | 171 | .00 | 1.61 | .00 | .00 | .00 | -.54 |
| | | 192 | .00 | -1.61 | .00 | .00 | .00 | 1.01 |
| 220 | 1 | 192 | .00 | -3.44 | .00 | .00 | .00 | -1.01 |
| | | 213 | .00 | 3.44 | .00 | .00 | .00 | .00 |
| 221 | 1 | 4 | .00 | 9.12 | .00 | .00 | .00 | 3.93 |
| | | 25 | .00 | -9.12 | .00 | .00 | .00 | -1.24 |
| 222 | 1 | 25 | .00 | 5.10 | .00 | .00 | .00 | 1.24 |
| | | 46 | .00 | -5.10 | .00 | .00 | .00 | .26 |
| 223 | 1 | 46 | .00 | 2.34 | .00 | .00 | .00 | -.26 |
| | | 67 | .00 | -2.34 | .00 | .00 | .00 | .95 |
| 224 | 1 | 67 | .00 | .67 | .00 | .00 | .00 | -.95 |
| | | 88 | .00 | -.67 | .00 | .00 | .00 | 1.15 |
| 225 | 1 | 88 | .00 | -.20 | .00 | .00 | .00 | -1.15 |
| | | 109 | .00 | .20 | .00 | .00 | .00 | 1.09 |
| 226 | 1 | 109 | .00 | -.53 | .00 | .00 | .00 | -1.09 |
| | | 130 | .00 | .53 | .00 | .00 | .00 | .93 |
| 227 | 1 | 130 | .00 | -.74 | .00 | .00 | .00 | -.93 |
| | | 151 | .00 | .74 | .00 | .00 | .00 | .72 |
| 228 | 1 | 151 | .00 | -1.53 | .00 | .00 | .00 | -.72 |
| | | 172 | .00 | 1.53 | .00 | .00 | .00 | .26 |
| 229 | 1 | 172 | .00 | -.89 | .00 | .00 | .00 | -.26 |
| | | 193 | .00 | .89 | .00 | .00 | .00 | .00 |
| 231 | 1 | 5 | .00 | 10.58 | .00 | .00 | .00 | 4.95 |
| | | 26 | .00 | -10.58 | .00 | .00 | .00 | -1.83 |
| 232 | 1 | 26 | .00 | 6.54 | .00 | .00 | .00 | 1.83 |
| | | 47 | .00 | -6.54 | .00 | .00 | .00 | .10 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 233 | 1 | 47 | .00 | 3.36 | .00 | .00 | .00 | -.10 |
| | | 68 | .00 | -3.36 | .00 | .00 | .00 | 1.09 |
| 234 | 1 | 68 | .00 | 1.16 | .00 | .00 | .00 | -1.09 |
| | | 89 | .00 | -1.16 | .00 | .00 | .00 | 1.43 |
| 235 | 1 | 89 | .00 | -.15 | .00 | .00 | .00 | -1.43 |
| | | 110 | .00 | .15 | .00 | .00 | .00 | 1.39 |
| 236 | 1 | 110 | .00 | -.70 | .00 | .00 | .00 | -1.39 |
| | | 131 | .00 | .70 | .00 | .00 | .00 | 1.18 |
| 237 | 1 | 131 | .00 | -.54 | .00 | .00 | .00 | -1.18 |
| | | 152 | .00 | .54 | .00 | .00 | .00 | 1.02 |
| 238 | 1 | 152 | .00 | -.10 | .00 | .00 | .00 | -1.02 |
| | | 173 | .00 | .10 | .00 | .00 | .00 | .99 |
| 239 | 1 | 173 | .00 | -3.38 | .00 | .00 | .00 | -1.00 |
| | | 194 | .00 | 3.38 | .00 | .00 | .00 | .00 |
| 241 | 1 | 6 | .00 | 11.06 | .00 | .00 | .00 | 5.50 |
| | | 27 | .00 | -11.06 | .00 | .00 | .00 | -2.24 |
| 242 | 1 | 27 | .00 | 7.14 | .00 | .00 | .00 | 2.24 |
| | | 48 | .00 | -7.14 | .00 | .00 | .00 | -.13 |
| 243 | 1 | 48 | .00 | 3.93 | .00 | .00 | .00 | .13 |
| | | 69 | .00 | -3.93 | .00 | .00 | .00 | 1.03 |
| 244 | 1 | 69 | .00 | 1.51 | .00 | .00 | .00 | -1.03 |
| | | 90 | .00 | -1.51 | .00 | .00 | .00 | 1.47 |
| 245 | 1 | 90 | .00 | -.09 | .00 | .00 | .00 | -1.47 |
| | | 111 | .00 | .09 | .00 | .00 | .00 | 1.45 |
| 246 | 1 | 111 | .00 | -.95 | .00 | .00 | .00 | -1.45 |
| | | 132 | .00 | .95 | .00 | .00 | .00 | 1.17 |
| 247 | 1 | 132 | .00 | -1.58 | .00 | .00 | .00 | -1.17 |
| | | 153 | .00 | 1.58 | .00 | .00 | .00 | .70 |
| 248 | 1 | 153 | .00 | -2.38 | .00 | .00 | .00 | -.70 |
| | | 174 | .00 | 2.38 | .00 | .00 | .00 | .00 |
| 251 | 1 | 7 | .00 | 10.87 | .00 | .00 | .00 | 5.65 |
| | | 28 | .00 | -10.87 | .00 | .00 | .00 | -2.45 |
| 252 | 1 | 28 | .00 | 7.08 | .00 | .00 | .00 | 2.45 |
| | | 49 | .00 | -7.08 | .00 | .00 | .00 | -.36 |
| 253 | 1 | 49 | .00 | 3.97 | .00 | .00 | .00 | .36 |
| | | 70 | .00 | -3.97 | .00 | .00 | .00 | .81 |
| 254 | 1 | 70 | .00 | 1.56 | .00 | .00 | .00 | -.81 |
| | | 91 | .00 | -1.56 | .00 | .00 | .00 | 1.27 |
| 255 | 1 | 91 | .00 | -.18 | .00 | .00 | .00 | -1.27 |
| | | 112 | .00 | .18 | .00 | .00 | .00 | 1.22 |
| 256 | 1 | 112 | .00 | -1.19 | .00 | .00 | .00 | -1.22 |
| | | 133 | .00 | 1.19 | .00 | .00 | .00 | .87 |
| 257 | 1 | 133 | .00 | -1.29 | .00 | .00 | .00 | -.87 |
| | | 154 | .00 | 1.29 | .00 | .00 | .00 | .49 |
| 258 | 1 | 154 | .00 | -1.66 | .00 | .00 | .00 | -.49 |
| | | 175 | .00 | 1.66 | .00 | .00 | .00 | .00 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 261 | 1 | 8 | .00 | 10.12 | .00 | .00 | .00 | 5.45 |
| | | 29 | .00 | -10.12 | .00 | .00 | .00 | -2.47 |
| 262 | 1 | 29 | .00 | 6.47 | .00 | .00 | .00 | 2.47 |
| | | 50 | .00 | -6.47 | .00 | .00 | .00 | -.56 |
| 263 | 1 | 50 | .00 | 3.53 | .00 | .00 | .00 | .56 |
| | | 71 | .00 | -3.53 | .00 | .00 | .00 | .48 |
| 264 | 1 | 71 | .00 | 1.37 | .00 | .00 | .00 | -.48 |
| | | 92 | .00 | -1.37 | .00 | .00 | .00 | .89 |
| 265 | 1 | 92 | .00 | -.12 | .00 | .00 | .00 | -.89 |
| | | 113 | .00 | .12 | .00 | .00 | .00 | .85 |
| 266 | 1 | 113 | .00 | -1.33 | .00 | .00 | .00 | -.85 |
| | | 134 | .00 | 1.33 | .00 | .00 | .00 | .46 |
| 267 | 1 | 134 | .00 | -2.14 | .00 | .00 | .00 | -.46 |
| | | 155 | .00 | 2.14 | .00 | .00 | .00 | -.17 |
| 268 | 1 | 155 | .00 | .60 | .00 | .00 | .00 | .18 |
| | | 176 | .00 | -.60 | .00 | .00 | .00 | .00 |
| 271 | 1 | 9 | .00 | 8.81 | .00 | .00 | .00 | 4.92 |
| | | 30 | .00 | -8.81 | .00 | .00 | .00 | -2.32 |
| 272 | 1 | 30 | .00 | 5.39 | .00 | .00 | .00 | 2.32 |
| | | 51 | .00 | -5.39 | .00 | .00 | .00 | -.73 |
| 273 | 1 | 51 | .00 | 2.79 | .00 | .00 | .00 | .73 |
| | | 72 | .00 | -2.79 | .00 | .00 | .00 | .09 |
| 274 | 1 | 72 | .00 | .91 | .00 | .00 | .00 | -.09 |
| | | 93 | .00 | -.91 | .00 | .00 | .00 | .36 |
| 275 | 1 | 93 | .00 | -.08 | .00 | .00 | .00 | -.36 |
| | | 114 | .00 | .08 | .00 | .00 | .00 | .33 |
| 276 | 1 | 114 | .00 | -.01 | .00 | .00 | .00 | -.33 |
| | | 135 | .00 | .01 | .00 | .00 | .00 | .33 |
| 277 | 1 | 135 | .00 | -1.13 | .00 | .00 | .00 | -.33 |
| | | 156 | .00 | 1.13 | .00 | .00 | .00 | .00 |
| 281 | 1 | 10 | .00 | 6.59 | .00 | .00 | .00 | 4.03 |
| | | 31 | .00 | -6.59 | .00 | .00 | .00 | -2.09 |
| 282 | 1 | 31 | .00 | 3.98 | .00 | .00 | .00 | 2.09 |
| | | 52 | .00 | -3.98 | .00 | .00 | .00 | -.91 |
| 283 | 1 | 52 | .00 | 2.13 | .00 | .00 | .00 | .91 |
| | | 73 | .00 | -2.13 | .00 | .00 | .00 | -.28 |
| 284 | 1 | 73 | .00 | .67 | .00 | .00 | .00 | .28 |
| | | 94 | .00 | -.67 | .00 | .00 | .00 | -.09 |
| 285 | 1 | 94 | .00 | -.61 | .00 | .00 | .00 | .09 |
| | | 115 | .00 | .61 | .00 | .00 | .00 | -.27 |
| 286 | 1 | 115 | .00 | -1.35 | .00 | .00 | .00 | .27 |
| | | 136 | .00 | 1.35 | .00 | .00 | .00 | -.66 |
| 287 | 1 | 136 | .00 | 2.26 | .00 | .00 | .00 | .67 |
| | | 157 | .00 | -2.26 | .00 | .00 | .00 | .00 |
| 291 | 1 | 11 | .00 | 3.39 | .00 | .00 | .00 | 2.86 |
| | | 32 | .00 | -3.39 | .00 | .00 | .00 | -1.86 |

| MEMBER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 292 | 1 | 32 | .00 | 2.62 | .00 | .00 | .00 | 1.86 |
| | | 53 | .00 | -2.62 | .00 | .00 | .00 | -1.09 |
| 293 | 1 | 53 | .00 | 1.65 | .00 | .00 | .00 | 1.09 |
| | | 74 | .00 | -1.65 | .00 | .00 | .00 | -.60 |
| 294 | 1 | 74 | .00 | .86 | .00 | .00 | .00 | .60 |
| | | 95 | .00 | -.86 | .00 | .00 | .00 | -.35 |
| 295 | 1 | 95 | .00 | .47 | .00 | .00 | .00 | .35 |
| | | 116 | .00 | -.47 | .00 | .00 | .00 | -.21 |
| 296 | 1 | 116 | .00 | .70 | .00 | .00 | .00 | .21 |
| | | 137 | .00 | -.70 | .00 | .00 | .00 | .00 |
| 301 | 1 | 12 | .00 | 1.53 | .00 | .00 | .00 | 1.96 |
| | | 33 | .00 | -1.53 | .00 | .00 | .00 | -1.51 |
| 302 | 1 | 33 | .00 | 1.44 | .00 | .00 | .00 | 1.51 |
| | | 54 | .00 | -1.44 | .00 | .00 | .00 | -1.09 |
| 303 | 1 | 54 | .00 | 1.19 | .00 | .00 | .00 | 1.09 |
| | | 75 | .00 | -1.19 | .00 | .00 | .00 | -.74 |
| 304 | 1 | 75 | .00 | 1.01 | .00 | .00 | .00 | .74 |
| | | 96 | .00 | -1.01 | .00 | .00 | .00 | -.44 |
| 305 | 1 | 96 | .00 | 1.02 | .00 | .00 | .00 | .44 |
| | | 117 | .00 | -1.02 | .00 | .00 | .00 | -.14 |
| 306 | 1 | 117 | .00 | .46 | .00 | .00 | .00 | .14 |
| | | 138 | .00 | -.46 | .00 | .00 | .00 | .00 |
| 311 | 1 | 13 | .00 | .77 | .00 | .00 | .00 | 1.36 |
| | | 34 | .00 | -.77 | .00 | .00 | .00 | -1.14 |
| 312 | 1 | 34 | .00 | .79 | .00 | .00 | .00 | 1.14 |
| | | 55 | .00 | -.79 | .00 | .00 | .00 | -.90 |
| 313 | 1 | 55 | .00 | .77 | .00 | .00 | .00 | .90 |
| | | 76 | .00 | -.77 | .00 | .00 | .00 | -.67 |
| 314 | 1 | 76 | .00 | .69 | .00 | .00 | .00 | .67 |
| | | 97 | .00 | -.69 | .00 | .00 | .00 | -.47 |
| 315 | 1 | 97 | .00 | .54 | .00 | .00 | .00 | .47 |
| | | 118 | .00 | -.54 | .00 | .00 | .00 | -.31 |
| 316 | 1 | 118 | .00 | 1.06 | .00 | .00 | .00 | .31 |
| | | 139 | .00 | -1.06 | .00 | .00 | .00 | .00 |
| 321 | 1 | 14 | .00 | .51 | .00 | .00 | .00 | .94 |
| | | 35 | .00 | -.51 | .00 | .00 | .00 | -.79 |
| 322 | 1 | 35 | .00 | .55 | .00 | .00 | .00 | .79 |
| | | 56 | .00 | -.55 | .00 | .00 | .00 | -.63 |
| 323 | 1 | 56 | .00 | .56 | .00 | .00 | .00 | .62 |
| | | 77 | .00 | -.56 | .00 | .00 | .00 | -.46 |
| 324 | 1 | 77 | .00 | .52 | .00 | .00 | .00 | .46 |
| | | 98 | .00 | -.52 | .00 | .00 | .00 | -.30 |
| 331 | 1 | 15 | .00 | .39 | .00 | .00 | .00 | .60 |
| | | 36 | .00 | -.39 | .00 | .00 | .00 | -.49 |
| 332 | 1 | 36 | .00 | .46 | .00 | .00 | .00 | .49 |
| | | 57 | .00 | -.46 | .00 | .00 | .00 | -.35 |

| MEMB ER | LOAD | JT | AXIAL | SHEAR-Y | SHEAR-Z | TORSION | MOM-Y | MOM-Z |
|---|---|---|---|---|---|---|---|---|
| 333 | 1 | 57 | .00 | .65 | .00 | .00 | .00 | .35 |
| | | 78 | .00 | -.65 | .00 | .00 | .00 | -.16 |
| 334 | 1 | 78 | .00 | .77 | .00 | .00 | .00 | .16 |
| | | 99 | .00 | -.77 | .00 | .00 | .00 | .07 |
| 335 | 1 | 99 | .00 | -.23 | .00 | .00 | .00 | -.07 |
| | | 120 | .00 | .23 | .00 | .00 | .00 | .00 |
| 341 | 1 | 16 | .00 | .27 | .00 | .00 | .00 | .31 |
| | | 37 | .00 | -.27 | .00 | .00 | .00 | -.23 |
| 342 | 1 | 37 | .00 | .28 | .00 | .00 | .00 | .23 |
| | | 58 | .00 | -.28 | .00 | .00 | .00 | -.15 |
| 343 | 1 | 58 | .00 | .30 | .00 | .00 | .00 | .15 |
| | | 79 | .00 | -.30 | .00 | .00 | .00 | -.06 |
| 351 | 1 | 17 | .00 | .16 | .00 | .00 | .00 | .09 |
| | | 38 | .00 | -.16 | .00 | .00 | .00 | -.04 |
| 352 | 1 | 38 | .00 | .10 | .00 | .00 | .00 | .04 |
| | | 59 | .00 | -.10 | .00 | .00 | .00 | -.01 |
| 353 | 1 | 59 | .00 | -.09 | .00 | .00 | .00 | .01 |
| | | 80 | .00 | .09 | .00 | .00 | .00 | -.04 |
| 354 | 1 | 80 | .00 | .12 | .00 | .00 | .00 | .04 |
| | | 101 | .00 | -.12 | .00 | .00 | .00 | .00 |
| 361 | 1 | 18 | .00 | .04 | .00 | .00 | .00 | -.06 |
| | | 39 | .00 | -.04 | .00 | .00 | .00 | .07 |
| 362 | 1 | 39 | .00 | .11 | .00 | .00 | .00 | -.07 |
| | | 60 | .00 | -.11 | .00 | .00 | .00 | .10 |
| 363 | 1 | 60 | .00 | .21 | .00 | .00 | .00 | -.10 |
| | | 81 | .00 | -.21 | .00 | .00 | .00 | .17 |
| 364 | 1 | 81 | .00 | -.56 | .00 | .00 | .00 | -.17 |
| | | 102 | .00 | .56 | .00 | .00 | .00 | .00 |
| 371 | 1 | 19 | .00 | -.10 | .00 | .00 | .00 | -.15 |
| | | 40 | .00 | .10 | .00 | .00 | .00 | .12 |
| 372 | 1 | 40 | .00 | -.18 | .00 | .00 | .00 | -.12 |
| | | 61 | .00 | .18 | .00 | .00 | .00 | .07 |
| 373 | 1 | 61 | .00 | -.23 | .00 | .00 | .00 | -.07 |
| | | 82 | .00 | .23 | .00 | .00 | .00 | .00 |
| 381 | 1 | 20 | .00 | -.13 | .00 | .00 | .00 | -.16 |
| | | 41 | .00 | .13 | .00 | .00 | .00 | .12 |
| 382 | 1 | 41 | .00 | -.12 | .00 | .00 | .00 | -.12 |
| | | 62 | .00 | .12 | .00 | .00 | .00 | .09 |
| 383 | 1 | 62 | .00 | -.29 | .00 | .00 | .00 | -.09 |
| | | 83 | .00 | .29 | .00 | .00 | .00 | .00 |
| 391 | 1 | 21 | .00 | -.25 | .00 | .00 | .00 | -.14 |
| | | 42 | .00 | .25 | .00 | .00 | .00 | .06 |
| 392 | 1 | 42 | .00 | -.21 | .00 | .00 | .00 | -.06 |
| | | 63 | .00 | .21 | .00 | .00 | .00 | .00 |

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

```
240. START CON DESIGN

241. FC    25000
242. CLEAR  0.065
243. TRACK 1
244. MAXMAIN 25

245. DESIGN BEAM 141 TO 144 161 TO 164 251 TO 254 261 TO 264
```

B E A M  N O. 141  D E S I G N  R E S U L T S -  FLEXURE

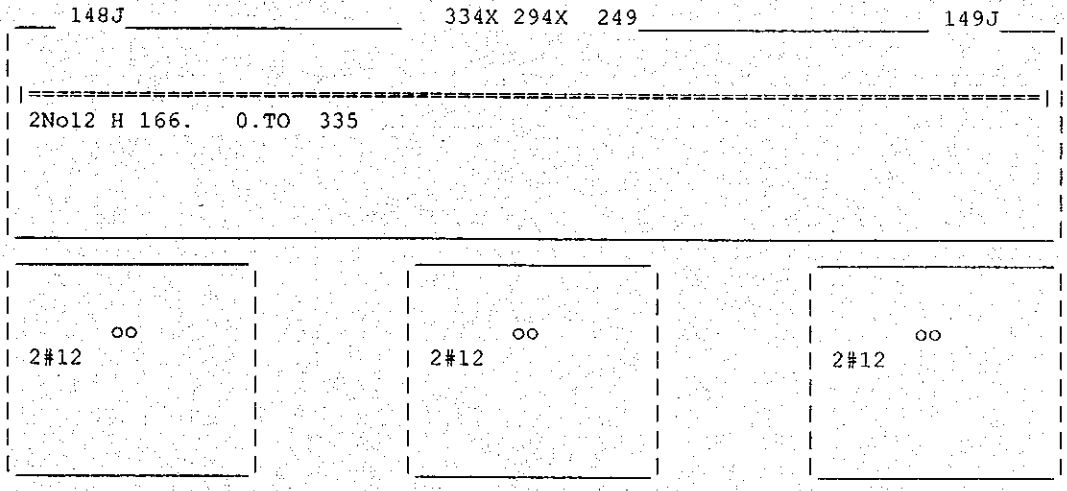
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

CRITICAL NEG MOMENT=  4.40 KN-MET AT  0.MM, LOAD  1
REQD STEEL=  164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING=  181./  37./  181. MMS
BASIC/REQD. DEVELOPMENT LENGTH =  177./  359. MMS

B E A M  N O. 141  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  4.46 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END  SUPPORT - Vu=  4.46 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 142  D E S I G N  R E S U L T S -  FLEXURE

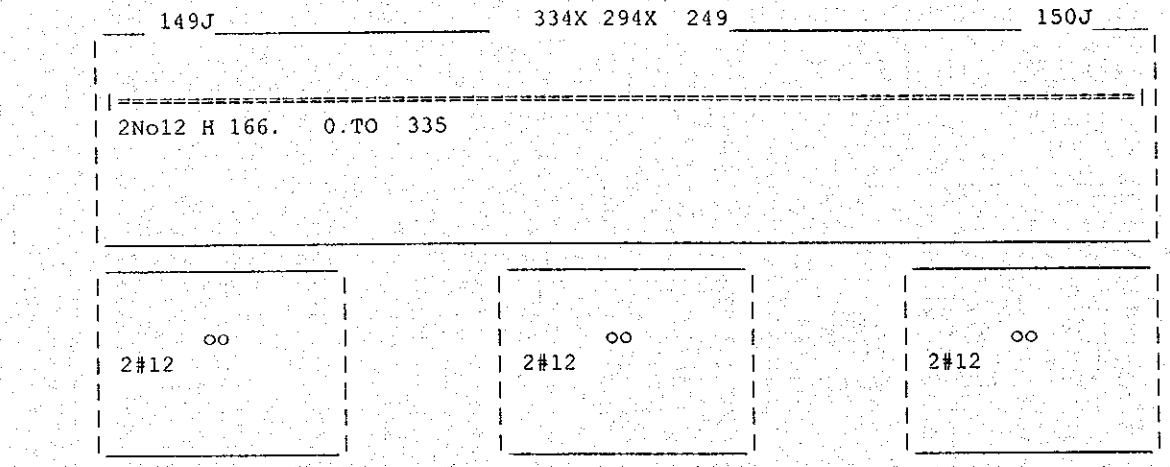
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=       2.91 KN-MET  AT      0.MM, LOAD   1  |
|   REQD STEEL=   164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033    |
|   MAX/MIN/ACTUAL BAR SPACING=   181./   37./  181. MMS            |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS             |
|-------------------------------------------------------------------|
```

B E A M  N O. 142  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  3.60 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  3.60 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 143  D E S I G N  R E S U L T S -  FLEXURE

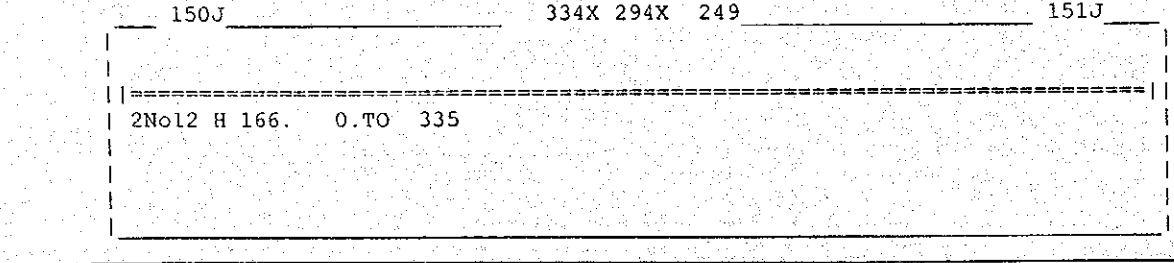
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

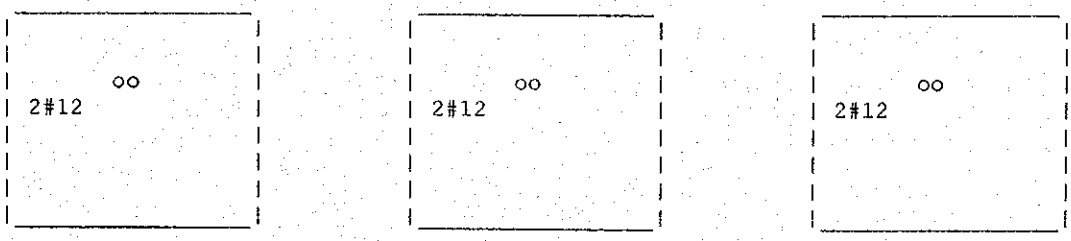
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=       1.70 KN-MET  AT      0.MM, LOAD   1  |
|   REQD STEEL=   164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033    |
|   MAX/MIN/ACTUAL BAR SPACING=   181./   37./  181. MMS            |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS             |
|-------------------------------------------------------------------|
```

B E A M  N O. 143  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  2.01 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  2.01 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.






B E A M  N O. 144  D E S I G N  R E S U L T S -  FLEXURE

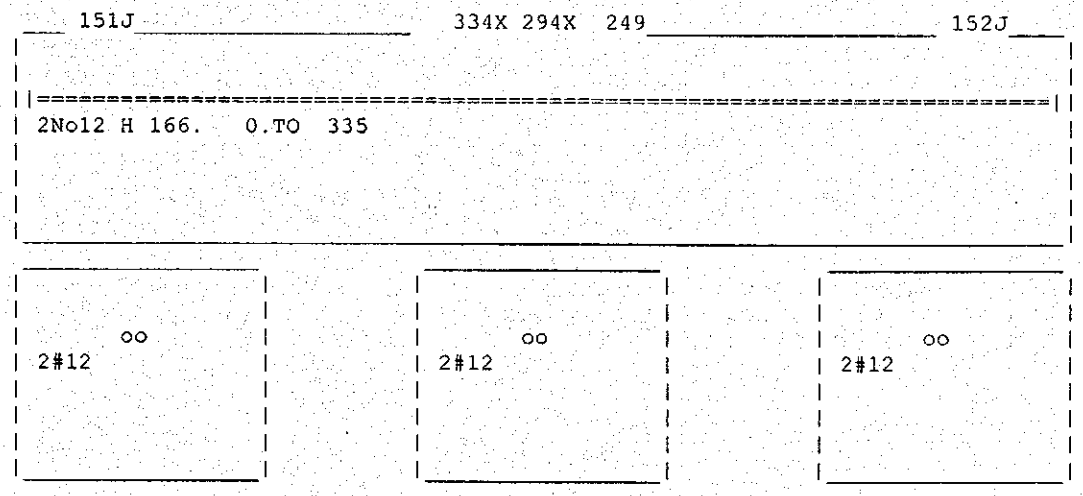
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

CRITICAL NEG MOMENT=  1.03 KN-MET  AT  0.MM, LOAD  1
REQD STEEL=  164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING=  181./  37./  181. MMS
BASIC/REQD. DEVELOPMENT LENGTH =  177./  359. MMS

B E A M  N O. 144  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  2.11 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END  SUPPORT - Vu=  2.11 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 161  D E S I G N  R E S U L T S -  FLEXURE

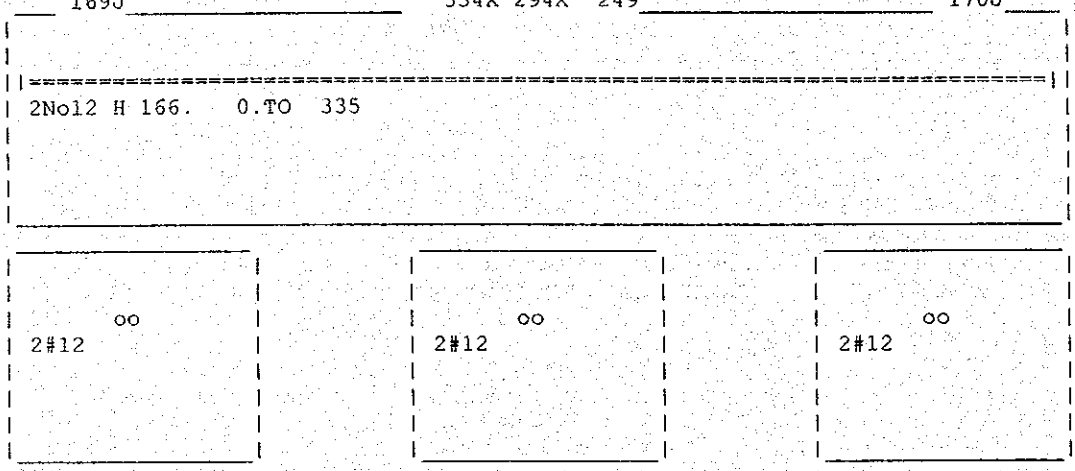
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      3.62 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   181./   37./  181. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS           |
|-------------------------------------------------------------------|
```

B E A M  N O. 161  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  2.55 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  2.55 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 162  D E S I G N  R E S U L T S -  FLEXURE

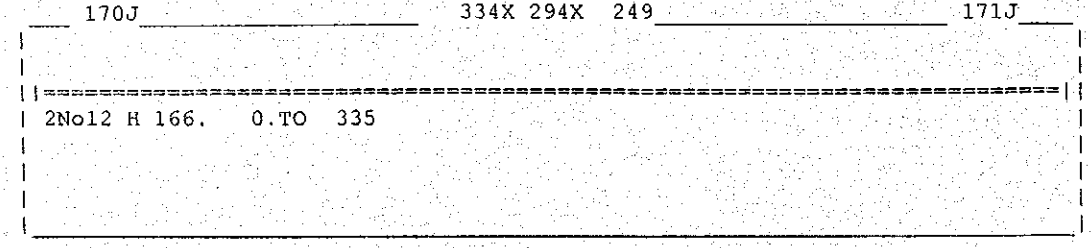
LEN -  335. MM  FY -  414.  FC -  25.  MPA, SIZE -  295. X  250. MMS

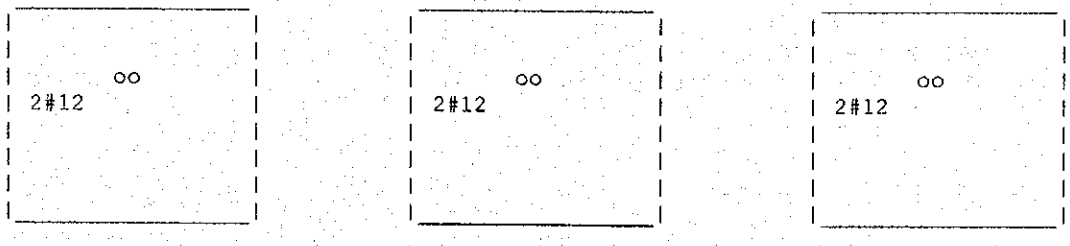
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      2.76 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   181./   37./  181. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS           |
|-------------------------------------------------------------------|
```

B E A M  N O. 162  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  2.85 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  2.85 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.






B E A M N O. 163 D E S I G N R E S U L T S - FLEXURE

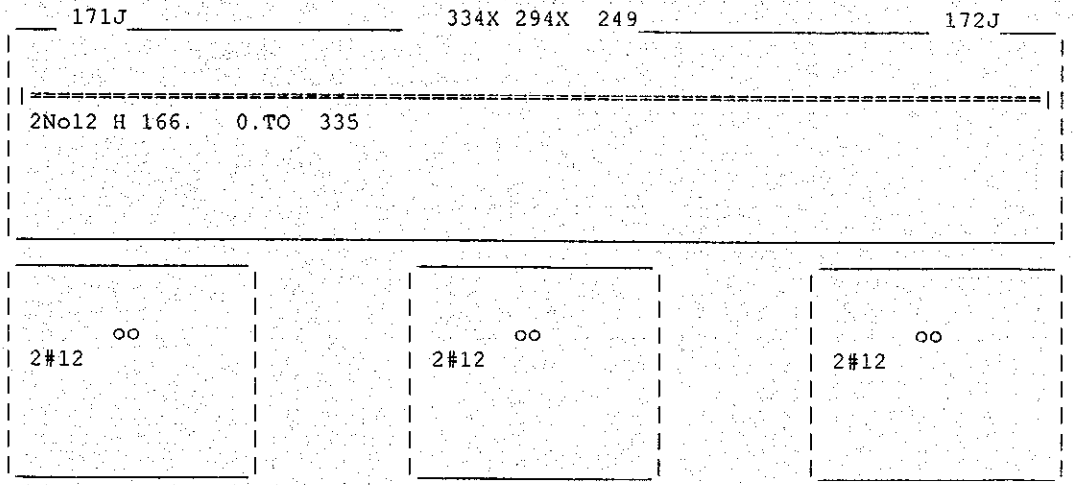
LEN - 335. MM FY - 414. FC - 25. MPA, SIZE - 295. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |

CRITICAL NEG MOMENT= 1.81 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 181./ 37./ 181. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

B E A M N O. 163 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 1.23 KNS Vc= 39.09 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 1.23 KNS Vc= 39.09 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 164 D E S I G N R E S U L T S - FLEXURE

LEN - 335. MM FY - 414. FC - 25. MPA, SIZE - 295. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 335. | YES | YES |



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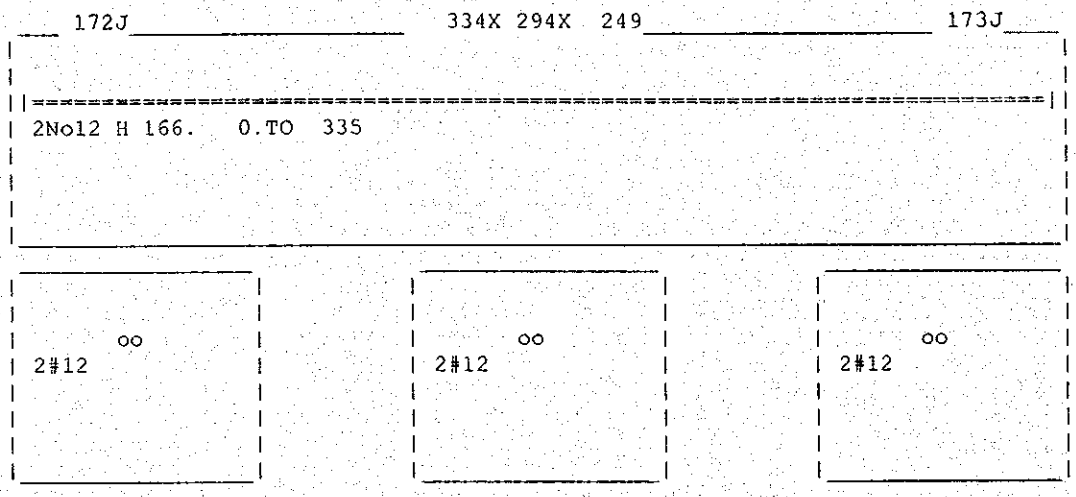
```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      1.39 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   164.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   181./   37./  181. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
|-------------------------------------------------------------------|
```

B E A M  N O. 164  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  .30 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  .30 KNS  Vc=  39.09 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 251  D E S I G N  R E S U L T S - FLEXURE

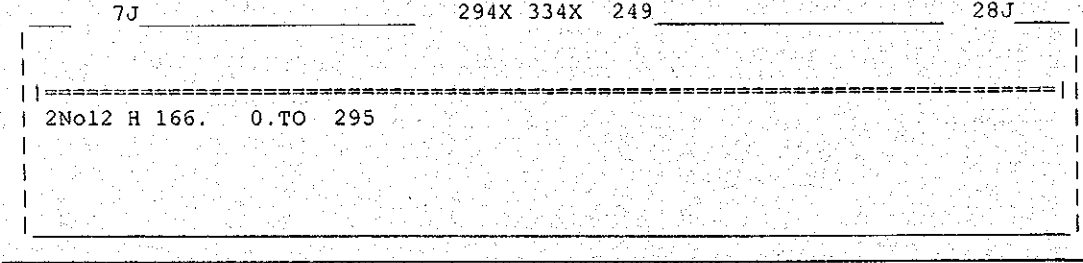
LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

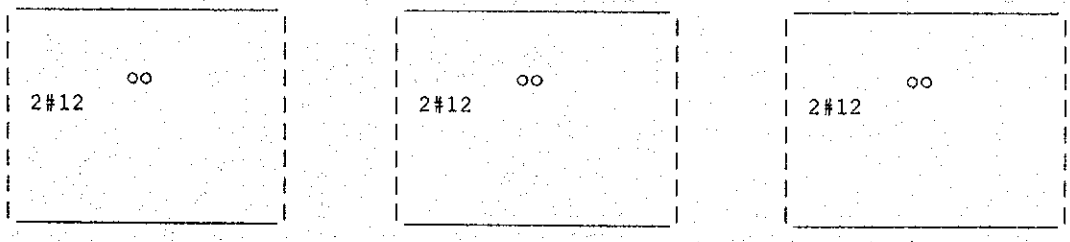
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 295. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      5.65 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   221./   37./  221. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
|-------------------------------------------------------------------|
```

B E A M  N O. 251  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu=  10.87 KNS  Vc=  44.40 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu=  10.87 KNS  Vc=  44.40 KNS  Vs=  .00 KNS
STIRRUPS ARE NOT REQUIRED.






B E A M N O. 252 D E S I G N R E S U L T S - FLEXURE

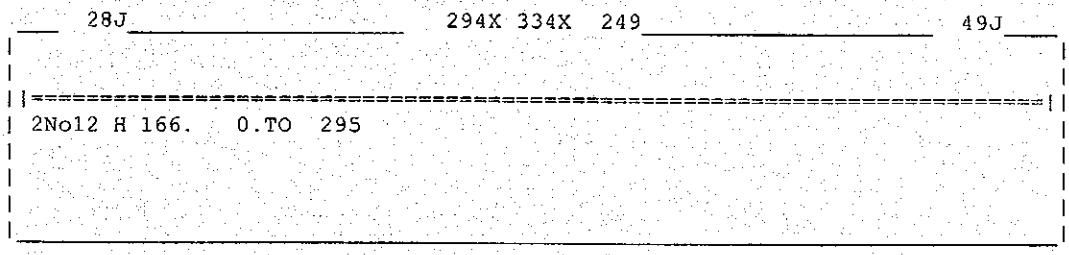
LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

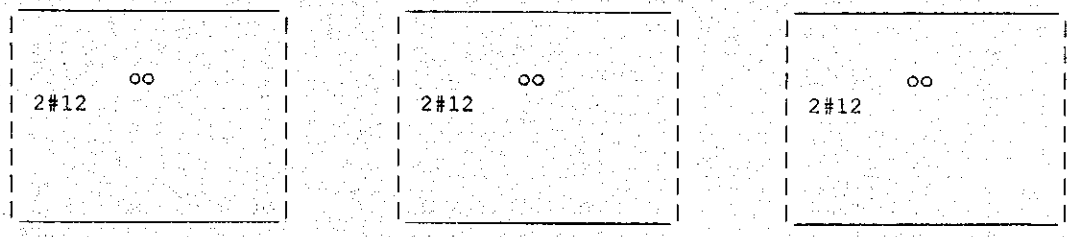
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL NEG MOMENT= 2.45 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

B E A M N O. 252 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 7.08 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 7.08 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 253 D E S I G N R E S U L T S - FLEXURE

LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

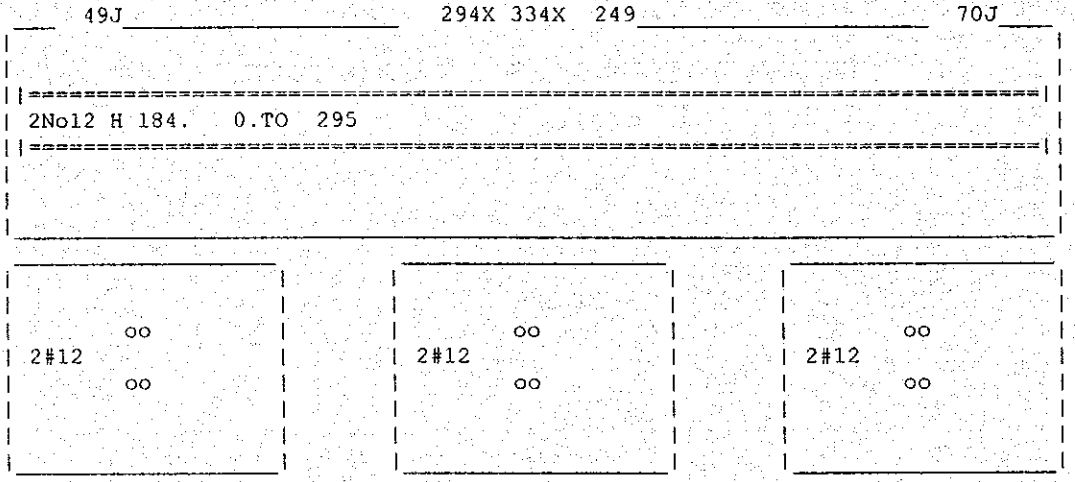
| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 2 - 12MM | 0. | 295. | YES | YES |

```
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=       .81 KN-MET  AT   295.MM, LOAD   1 |
|   REQD STEEL=   186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   221./   37./  221. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   295. MMS           |
|-------------------------------------------------------------------|

  2        166.     2 - 12MM         0.          295.        YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=       .36 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   221./   37./  221. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS           |
|-------------------------------------------------------------------|
```

B E A M  N O. 253  D E S I G N  R E S U L T S - SHEAR

```
 AT START SUPPORT - Vu=    3.97 KNS  Vc=   44.40 KNS  Vs=      .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=    3.97 KNS  Vc=   44.40 KNS  Vs=      .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
```




B E A M  N O. 254  D E S I G N  R E S U L T S -  FLEXURE

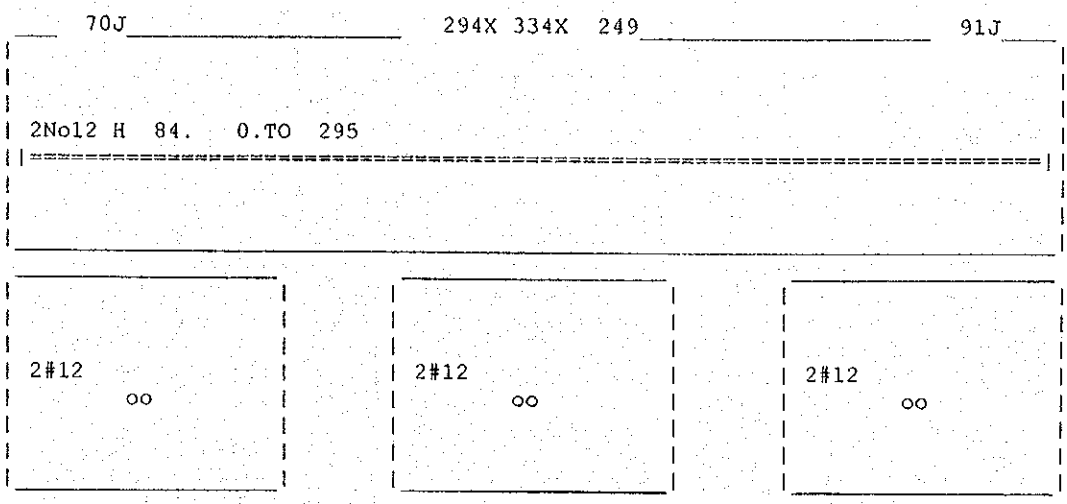
```
 LEN -   295. MM  FY -  414.  FC -  25.  MPA, SIZE -  335. X  250. MMS

 LEVEL     HEIGHT      BAR INFO        FROM          TO          ANCHOR
             (MM)                       (MM)         (MM)        STA  END
-------------------------------------------------------------------------

  1          84.     2 - 12MM         0.          295.        YES  YES
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=       1.27 KN-MET  AT   295.MM, LOAD   1 |
|   REQD STEEL=   186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   221./   37./  221. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   295. MMS           |
|-------------------------------------------------------------------|
```

B E A M  N O. 254  D E S I G N  R E S U L T S - SHEAR

```
 AT START SUPPORT - Vu=    1.56 KNS  Vc=   44.40 KNS  Vs=      .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=    1.56 KNS  Vc=   44.40 KNS  Vs=      .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
```




B E A M N O. 261 D E S I G N R E S U L T S - FLEXURE

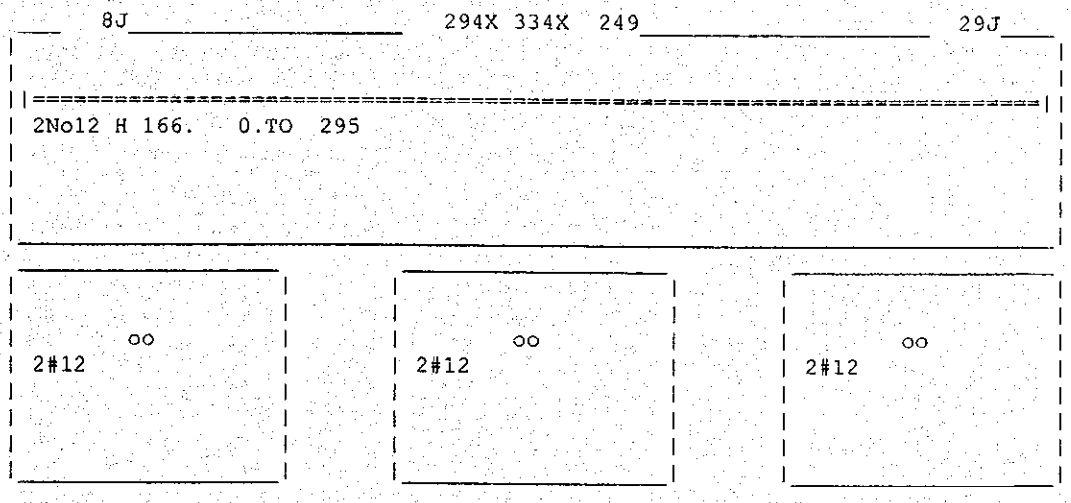
LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL NEG MOMENT= 5.45 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

B E A M N O. 261 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 10.12 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 10.12 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 262 D E S I G N R E S U L T S - FLEXURE

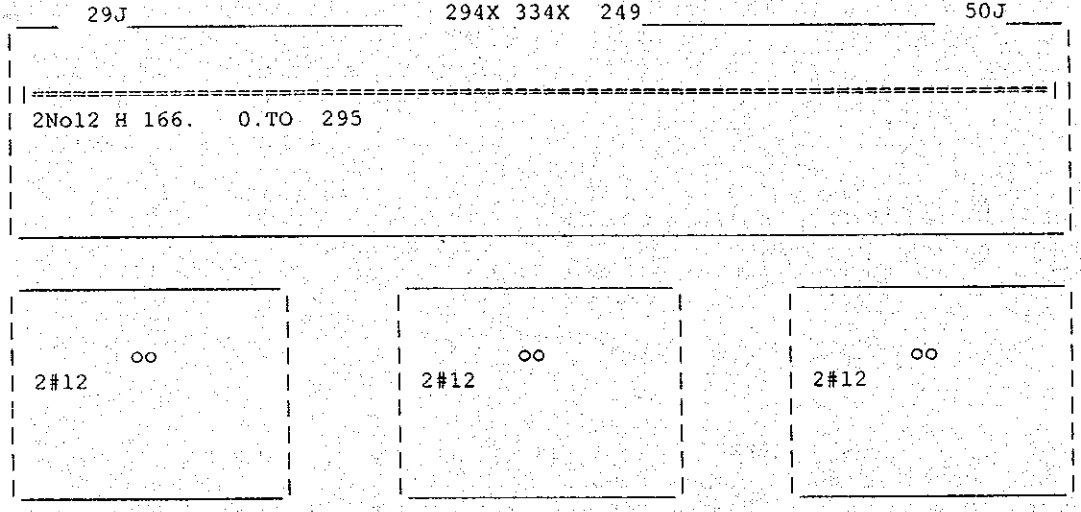
LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 166. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL NEG MOMENT= 2.47 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

B E A M N O. 262 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 6.47 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 6.47 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M N O. 263 D E S I G N R E S U L T S - FLEXURE

LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL POS MOMENT= .48 KN-MET AT 295.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 295. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 2 | 166. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL NEG MOMENT= .56 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS



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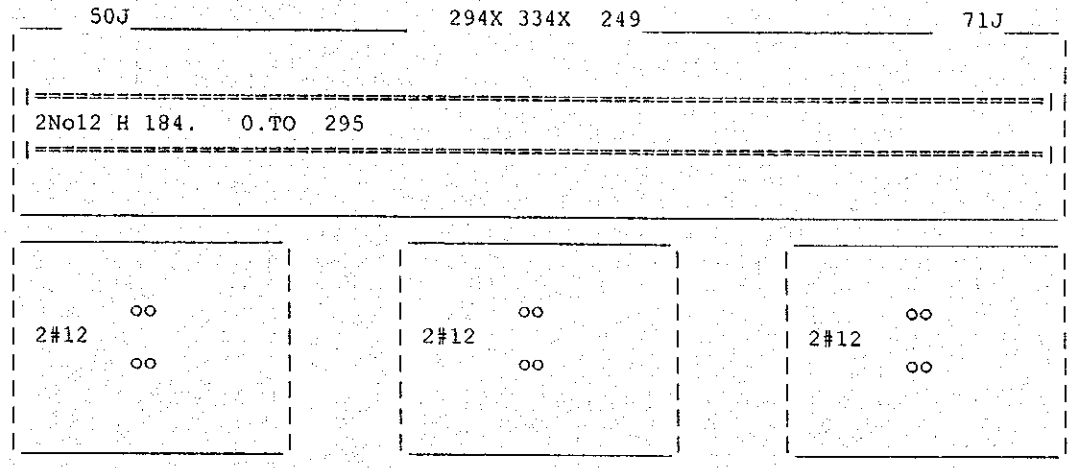
B E A M  N O. 263  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 3.53 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 3.53 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.




B E A M  N O. 264  D E S I G N  R E S U L T S - FLEXURE

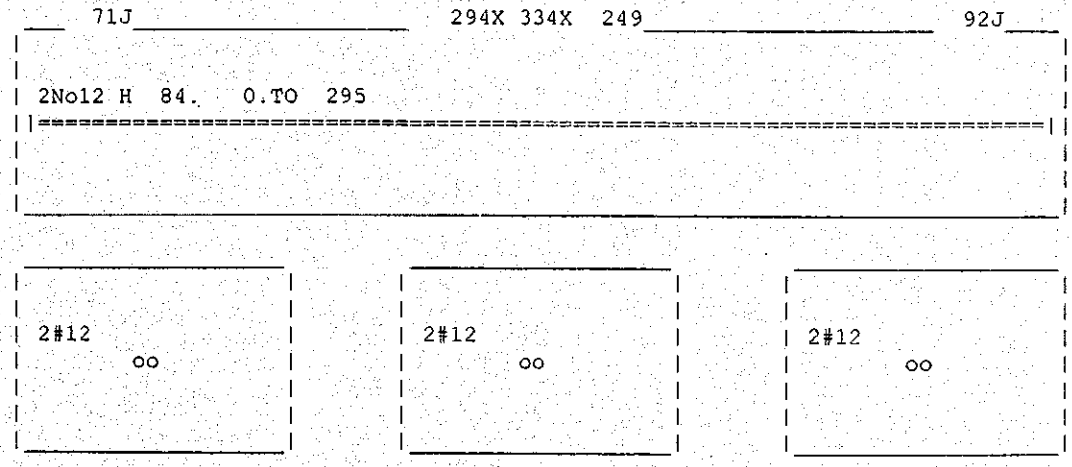
LEN - 295. MM FY - 414. FC - 25. MPA, SIZE - 335. X 250. MMS

| LEVEL | HEIGHT (MM) | BAR INFO | FROM (MM) | TO (MM) | ANCHOR STA | ANCHOR END |
|---|---|---|---|---|---|---|
| 1 | 84. | 2 - 12MM | 0. | 295. | YES | YES |

CRITICAL POS MOMENT= .89 KN-MET AT 295.MM, LOAD 1
REQD STEEL= 186.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 221./ 37./ 221. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 295. MMS

B E A M  N O. 264  D E S I G N  R E S U L T S - SHEAR

AT START SUPPORT - Vu= 1.37 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 1.37 KNS Vc= 44.40 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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```
*********************END OF BEAM DESIGN*************************


249. END CON DESIGN
250. FINISH

          *************** END OF STAAD-III ***************

           **** DATE= JAN 29,2000   TIME= 15: 9:32 ****

      ***********************************************************
      *        For questions on  STAAD-III,   contact:          *
      *              Research Engineers, Inc at                 *
      *  West Coast: Ph- (714) 974-2500  Fax- (714) 921-2543    *
      *  East Coast: Ph- (508) 688-3626  Fax- (508) 685-7230    *
      ***********************************************************
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