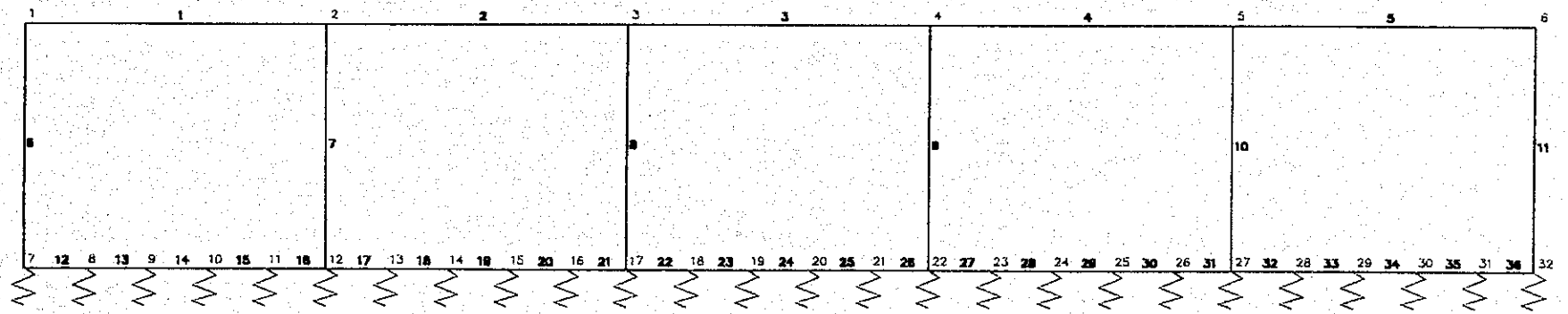
2-1-7 BOX CULVERT AT CH.6+496

(1) BOX CULVERT

BOX CULVERT AT CH. 5+496



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=    11:45:32                     *
 *                                                *
 *      USER ID: Development Design Consultants L *
 **************************************************


  1. STAAD PLANE DESIGN OF BOX CULVERT (5 X 2.5 X 2.0)
  2. UNIT METER KNS
  3. JOINT COORD
  4.   1  0.00  2.25  0.00
  5.   2  2.67  2.25  0.00
  6.   3  5.33  2.25  0.00
  7.   4  8.00  2.25  0.00
  8.   5 10.67  2.25  0.00
  9.   6 13.33  2.25  0.00
 10.   7  0.00  0.00  0.00  11  2.136 0.00 0.00
 11.  12  2.67  0.00  0.00  16  4.806 0.00 0.00
 12.  17  5.33  0.00  0.00  21  7.476 0.00 0.00
 13.  22  8.00  0.00  0.00  26 10.146 0.00 0.00
 14.  27 10.67  0.00  0.00  31 12.816 0.00 0.00
 15.  32 13.33  0.00  0.00
 17. MEMBER INCI
 18.    1     1     2      5
 19.    6     1     7
 20.    7     2    12
 21.    8     3    17
 22.    9     4    22
 23.   10     5    27
 24.   11     6    32
 25.   12     7     8   36
 26. MEMBER PROPERTY
 27. 1  TO 5  PRIS    YD     0.250 ZD 1.0
 28. 6  11    PRIS    YD     0.250 ZD 1.0
 29. 7  TO 10 PRIS    YD     0.250 ZD 1.0
 30. 12 TO 36 PRIS    YD     0.250 ZD 1.0
 31. CONSTANT
 32. E 23.667E6 ALL
 33. DENSITY 23.56 ALL
 34. SUPPORT
 35. *8 TO 31 FIXED BUT MZ  KFY   1067
 36. *7  32   FIXED BUT MZ  KFY   534
 37. *
 38. 10 TO 29         FIXED BUT MZ  KFY   1067
 39. 7 8 9  30 31 32  FIXED BUT MZ  KFY   1600
 40. *
 41. LOAD  1  : SELFWEIGHT
 42. SELFWEIGHT  Y  -1
 43. LOAD  2  : FILL WEIGHT
 44. MEMBER LOAD
 45. 1  TO  5  UNI    GY    -30.03
 46. LOAD  3  : BACK FILL (MINIMUM)
 47. MEMBER LOAD
 48.  6 TRAP    GX     8.12  18.75
 49. 11 TRAP    GX    -8.12 -18.75
 50. LOAD  4  : BACK FILL (MAXIMUM)
 51. MEMBER LOAD
 52.  6 TRAP    GX    20.07  24.08  0.00  0.43
 53.  6 TRAP    GX    24.08  47.08  0.43  2.25
 54. 11 TRAP    GX   -20.07 -24.08  0.00  0.43
 55. 11 TRAP    GX   -24.08 -47.08  0.43  2.25
 56. LOAD 5   : LL IN ADJACENT SPANS
 57. MEMBER LOAD
```

```
 58.  1 UNI      GY   -13.32    0.00  2.67
 59.  2 UNI      GY   -13.32    1.54  2.67
 60. LOAD 6    : LL IN ALTERNATE SPAN
 61. MEMBER LOAD
 62.  1 UNI      GY   -13.32    0.00  2.67
 63.  3 UNI      GY   -13.32    0.00  2.67
 64. LOAD 7    : LL IN SPAN 1
 65. MEMBER LOAD
 66.  1 UNI      GY   -13.32    0.00  2.67
 67. LOAD 8    : LL IN SPAN 2
 68. MEMBER LOAD
 69.  2 UNI      GY   -13.32    0.00  2.67
 70. LOAD 9    : LL IN MIDDLE OF BOX CULVERT
 71. MEMBER LOAD
 72.  3 UNI      GY   -13.32    0.00  2.67
 73. LOAD 10   : MILITARY LOADING IN SPAN 1
 74. MEMBER LOAD
 75.  1 UNI      GY   -11.54    0.00  1.33
 76.  1 UNI      GY   -11.54    1.33  2.67
 77. LOAD 11   : MILITARY LOADING IN SPAN 2
 78. MEMBER LOAD
 79.  2 UNI      GY   -11.54    0.00  1.33
 80.  2 UNI      GY   -11.54    1.33  2.67
 81. LOAD 12   : LL IN SPAN 1 FOR MAX. SHEAR
 82. MEMBER LOAD
 83.  1 UNI      GY   -13.32    0.00  2.67
 84. LOAD 13   : MILITARY LOADING IN SPAN 1 FOR MAX. SHEAR
 85. MEMBER LOAD
 86.  1 UNI      GY   -11.54    0.00  2.00
 87.  1 UNI      GY   -11.54    2.00  2.67
 89. *
 90. LOAD COMB 14
 91. 1  1.3  2  1.3  4  1.3  12  2.171
 92. LOAD COMB 15
 93. 1  1.3  2  1.3  4  1.3  13  2.171
 94. *
 95. LOAD COMB 16
 96. 1  1.3  2  1.3  4  1.3  5  2.171
 97. LOAD COMB 17
 98. 1  1.3  2  1.3  4  1.3  6  2.171
 99. LOAD COMB 18
100. 1  1.3  2  1.3  4  1.3  7  2.171
101. LOAD COMB 19
102. 1  1.3  2  1.3  4  1.3  8  2.171
103. LOAD COMB 20
104. 1  1.3  2  1.3  4  1.3  9  2.171
105. LOAD COMB 21
106. 1  1.3  2  1.3  4  1.3  10 2.171
107. LOAD COMB 22
108. 1  1.3  2  1.3  4  1.3  11  2.171
109. *
110. LOAD COMB 23
111. 1  1.3  2  1.3  3  1.3  5  2.171
112. LOAD COMB 24
113. 1  1.3  2  1.3  3  1.3  6  2.171
114. LOAD COMB 25
115. 1  1.3  2  1.3  3  1.3  7  2.171
116. LOAD COMB 26
117. 1  1.3  2  1.3  3  1.3  8  2.171
118. LOAD COMB 27
119. 1  1.3  2  1.3  3  1.3  9  2.171
120. LOAD COMB 28
121. 1  1.3  2  1.3  3  1.3  10 2.171
122. LOAD COMB 29
123. 1  1.3  2  1.3  3  1.3  11  2.171
124. LOAD COMB 30
125. 1  1.3   4  1.3
126. *
```

127. 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 = 32/ 36/ 26
ORIGINAL/FINAL BAND-WIDTH = 26/ 5
TOTAL PRIMARY LOAD CASES = 13, TOTAL DEGREES OF FREEDOM = 70
SIZE OF STIFFNESS MATRIX = 980 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 12.09/ 219.7 MB, EXMEM = 1956.5 MB

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

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

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

++ Processing Element Stiffness Matrix. 11:45:33
++ Processing Global Stiffness Matrix. 11:45:33
++ Processing Triangular Factorization. 11:45:33
++ Calculating Joint Displacements. 11:45:33
++ Calculating Member Forces. 11:45:33

128. LOAD LIST 14 TO 30
129. PLOT DISP FILE
130. PRINT MAXFORCE ENVELOP LIST 1 2 4 6 7 8 TO 17

MEMBER FORCE ENVELOPE

ALL UNITS ARE KNS METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1	MAX	109.90	.00	17	50.21	.00	19			
		.00	.00	14	.00	.00	14	64.71 C	.00	19
	MIN	-99.06	2.67	25	-32.50	1.34	25			
		.00	2.67	30	.00	2.67	30	29.38 C	2.67	25
2	MAX	111.26	.00	26	51.07	.00	26			
		.00	.00	14	.00	.00	14	103.65 C	.00	19
	MIN	-90.47	2.66	19	-30.91	1.55	19			
		.00	2.66	30	.00	2.66	30	38.45 C	2.66	25
4	MAX	59.38	.00	14	50.50	2.67	27			
		.00	.00	14	.00	.00	14	98.97 C	.00	20
	MIN	-79.43	2.67	27	-17.16	.89	20			
		.00	2.67	30	.00	2.67	30	41.06 C	2.67	25
6	MAX	53.44	2.25	30	13.37	1.31	30			
		.00	.00	14	.00	.00	14	127.13 C	2.25	17
	MIN	-64.71	.00	19	-50.21	.00	19			
		.00	2.25	30	.00	2.25	30	16.75 C	2.06	30
7	MAX	-5.78	.00	30	45.75	2.25	27			
		.00	.00	14	.00	.00	14	191.50 C	2.25	23
	MIN	-38.94	2.25	19	-44.59	.00	19			
		.00	2.25	30	.00	2.25	30	15.29 C	2.06	30
8	MAX	2.53	.00	26	23.40	2.25	20			
		.00	.00	14	.00	.00	14	168.52 C	2.25	17
	MIN	-23.56	2.25	20	-29.80	.00	27			
		.00	2.25	30	.00	2.25	30	19.02 C	2.06	30

11-3/6

MEMB		FY/ FZ	DIST DIST	LD LD	MZ/ MY	DIST DIST	LD LD	FX	DIST	LD
9	MAX	23.21	.00	20	29.39	.00	27			
		.00	.00	14	.00	.00	14	167.52 C	2.25	17
	MIN	1.14	2.25	25	-23.03	2.25	20			
		.00	2.25	30	.00	2.25	30	19.05 C	2.06	30
10	MAX	38.24	.00	20	41.14	.00	20			
		.00	.00	14	.00	.00	14	147.78 C	2.25	27
	MIN	5.79	2.25	30	-45.65	2.25	27			
		.00	2.25	30	.00	2.25	30	15.15 C	2.06	30
11	MAX	60.73	.00	20	45.74	.00	20			
		.00	.00	14	.00	.00	14	93.50 C	2.25	20
	MIN	-53.34	2.25	30	-13.42	1.31	30			
		.00	2.25	30	.00	2.25	30	16.81 C	2.06	30
12	MAX	-18.60	.00	30	34.11	.53	26			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	-74.91	.53	17	-16.27	.00	18			
		.00	.53	30	.00	.53	30	.00	.53	30
13	MAX	-2.44	.00	26	42.17	.53	24			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	-25.05	.53	18	-1.07	.00	30			
		.00	.53	30	.00	.53	30	.00	.53	30
14	MAX	41.13	.00	26	42.17	.00	24			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	.19	.53	30	2.67	.53	30			
		.00	.53	30	.00	.53	30	.00	.53	30
15	MAX	69.36	.00	26	24.69	.00	24			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	6.57	.53	30	-20.32	.53	26			
		.00	.53	30	.00	.53	30	.00	.53	30
16	MAX	100.43	.00	24	-1.93	.00	30			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	13.05	.53	30	-71.68	.53	26			
		.00	.53	30	.00	.53	30	.00	.53	30
17	MAX	-8.81	.00	30	10.07	.53	20			
		.00	.00	14	.00	.00	14	.00	.00	14
	MIN	-65.50	.53	25	-40.54	.00	25			
		.00	.53	30	.00	.53	30	.00	.53	30

```
131. START CONC DESIGN
132. FC 25000.0
133. TRACK 2
134. MAXMAIN 20.
135. CLEAR  0.05
136. DESIGN BEAM 1 TO 5
```

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

LEN - 2670. 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	71.	3 - 16MM	0.	2670.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      32.50 KN-MET  AT  1335.MM, LOAD  25   |
|   REQD STEEL=   598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033    |
|   MAX/MIN/ACTUAL BAR SPACING=   882./   41./  441. MMS            |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   474. MMS             |
|-------------------------------------------------------------------|

  2        181.     7 - 12MM          0.          1694.        YES  NO
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      50.21 KN-MET  AT     0.MM, LOAD  19   |
|   REQD STEEL=   776.MM2, ROW= .0043, ROWMX= .0194 ROWMN= .0033    |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  148. MMS            |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS             |
|-------------------------------------------------------------------|

  3        179.     3 - 16MM       1858.          2670.         NO   YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      32.36 KN-MET  AT  2670.MM, LOAD  25   |
|   REQD STEEL=   598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033    |
|   MAX/MIN/ACTUAL BAR SPACING=   882./   41./  441. MMS            |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. MMS             |
|-------------------------------------------------------------------|
```

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 817.	0./ 50.	0/ 19
222.	0./ 540.	0./ 34.	0/ 19
445.	14./ 310.	1./ 20.	25/ 19
667.	226./ 121.	14./ 8.	25/ 19
890.	384./ 59.	24./ 4.	25/ 30
1112.	482./ 27.	30./ 2.	25/ 30
1335.	520./ 2.	33./ 0.	25/ 30
1557.	496./ 0.	31./ 0.	25/ 0
1780.	420./ 0.	26./ 0.	24/ 0
2002.	292./ 0.	18./ 0.	17/ 0
2225.	163./ 0.	10./ 0.	19/ 0
2447.	59./ 191.	4./ 12.	19/ 25
2670.	28./ 517.	2./ 32.	30/ 25

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=   96.70 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT  87. MM  C/C FOR  556. MM
 AT END   SUPPORT - Vu=   85.86 KNS  Vc=  144.98 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT  87. MM  C/C FOR  556. MM
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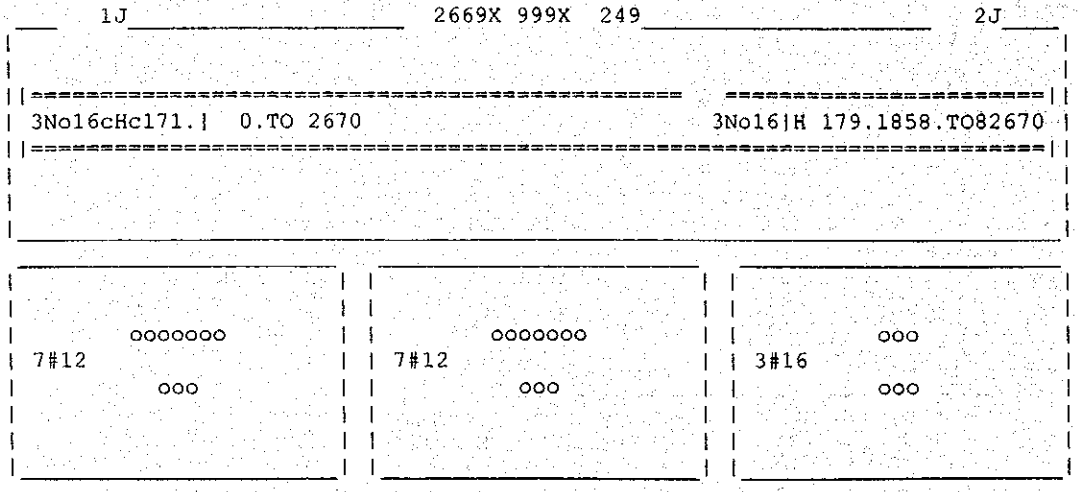


B E A M N O. 2 D E S I G N R E S U L T S - FLEXURE

LEN - 2660. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

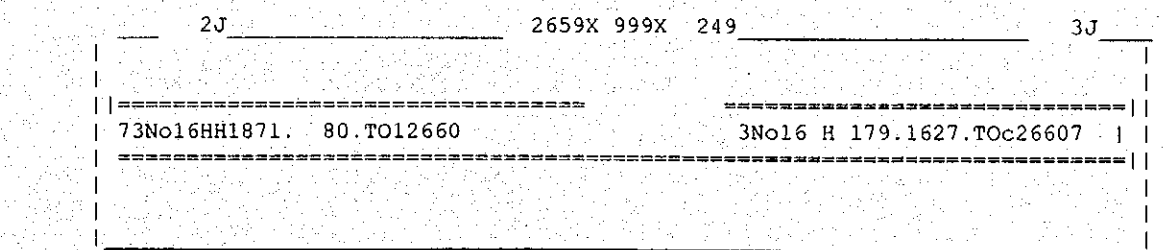
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	71.	3 - 16MM	80.	2660.	NO	YES
	CRITICAL POS MOMENT= 30.91 KN-MET AT 1552.MM, LOAD 19					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 474. MMS					
2	181.	7 - 12MM	0.	1245.	YES	NO
	CRITICAL NEG MOMENT= 51.07 KN-MET AT 0.MM, LOAD 26					
	REQD STEEL= 790.MM2, ROW= .0044, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 148. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS					
3	179.	3 - 16MM	1627.	2660.	NO	YES
	CRITICAL NEG MOMENT= 22.98 KN-MET AT 2660.MM, LOAD 18					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					

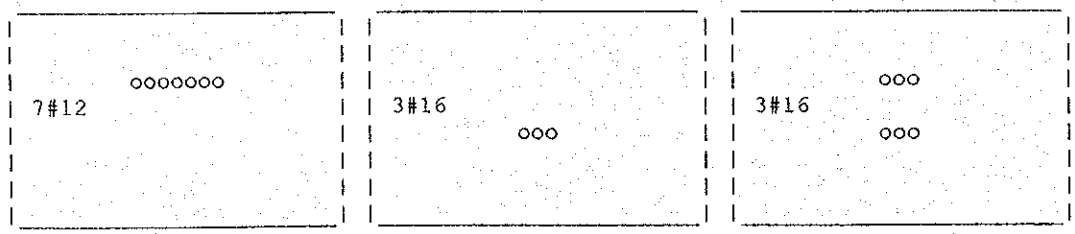
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 832.	0./ 51.	0/ 26
222.	0./ 547.	0./ 34.	0/ 27
443.	0./ 319.	0./ 20.	0/ 24
665.	111./ 143.	7./ 9.	19/ 24
887.	294./ 5.	19./ 0.	19/ 24
1108.	420./ 0.	26./ 0.	19/ 0
1330.	487./ 0.	31./ 0.	19/ 0
1552.	494./ 0.	31./ 0.	19/ 0
1773.	439./ 0.	28./ 0.	19/ 0
1995.	325./ 0.	21./ 0.	19/ 0
2217.	167./ 32.	11./ 2.	27/ 18
2438.	64./ 178.	4./ 11.	27/ 18
2660.	0./ 364.	0./ 23.	0/ 18

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= 98.06 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 554. MM
AT END SUPPORT - Vu= 77.26 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 332. MM





B E A M N O. 3 D E S I G N R E S U L T S - FLEXURE

LEN - 2670. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

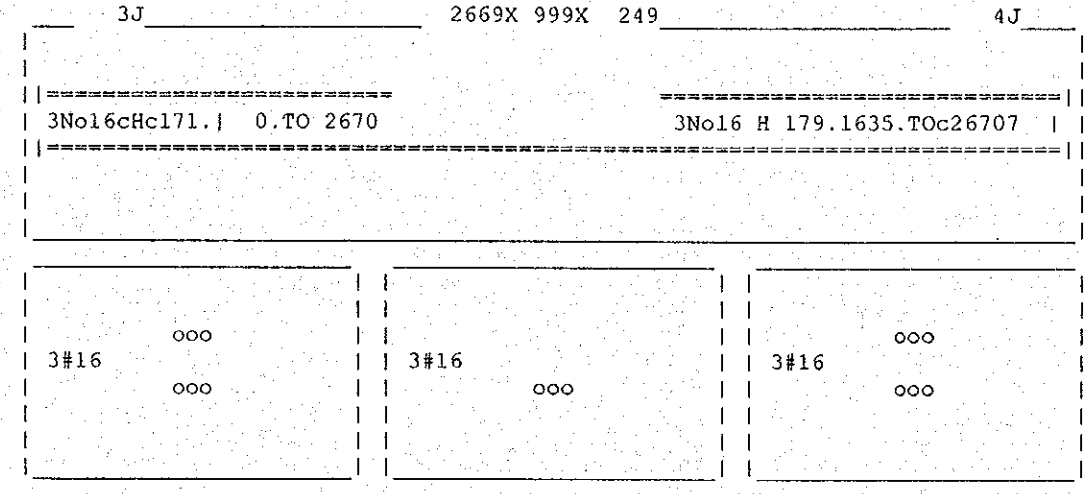
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	71.	3 - 16MM	0.	2670.	YES	YES
	CRITICAL POS MOMENT= 33.03 KN-MET AT 1335.MM, LOAD 27					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 474. MMS					
2	179.	3 - 16MM	0.	923.	YES	NO
	CRITICAL NEG MOMENT= 37.94 KN-MET AT 0.MM, LOAD 17					
	REQD STEEL= 594.MM2, ROW= .0034, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
3	179.	3 - 16MM	1635.	2670.	NO	YES
	CRITICAL NEG MOMENT= 34.35 KN-MET AT 2670.MM, LOAD 20					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	0./	610.	0./	38.	0/	17
222.	0./	268.	0./	17.	0/	17
445.	47./	67.	3./	4.	27/	18
667.	254./	0.	16./	0.	27/	0
890.	405./	0.	26./	0.	27/	0
1112.	497./	0.	31./	0.	27/	0
1335.	528./	0.	33./	0.	27/	0
1557.	498./	0.	31./	0.	27/	0
1780.	406./	0.	26./	0.	27/	0
2002.	256./	0.	16./	0.	27/	0
2225.	49./	125.	3./	8.	27/	19
2447.	0./	311.	.0./	20.	0/	19
2670.	0./	550.	0./	34.	0/	20

B E A M N O. 3 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 89.19 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 556. MM
AT END SUPPORT - Vu= 87.67 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 556. MM



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

LEN - 2670. 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	71.	3 - 16MM	0.	2476.	YES	NO
	CRITICAL POS MOMENT= 17.16 KN-MET AT 2670.MM, LOAD 20					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 474. MMS					
2	179.	3 - 16MM	0.	923.	YES	NO
	CRITICAL NEG MOMENT= 22.34 KN-MET AT 0.MM, LOAD 18					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
3	181.	7 - 12MM	1533.	2670.	NO	YES
	CRITICAL NEG MOMENT= 50.50 KN-MET AT 2670.MM, LOAD 27					
	REQD STEEL= 781.MM2, ROW= .0043, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 148. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS					

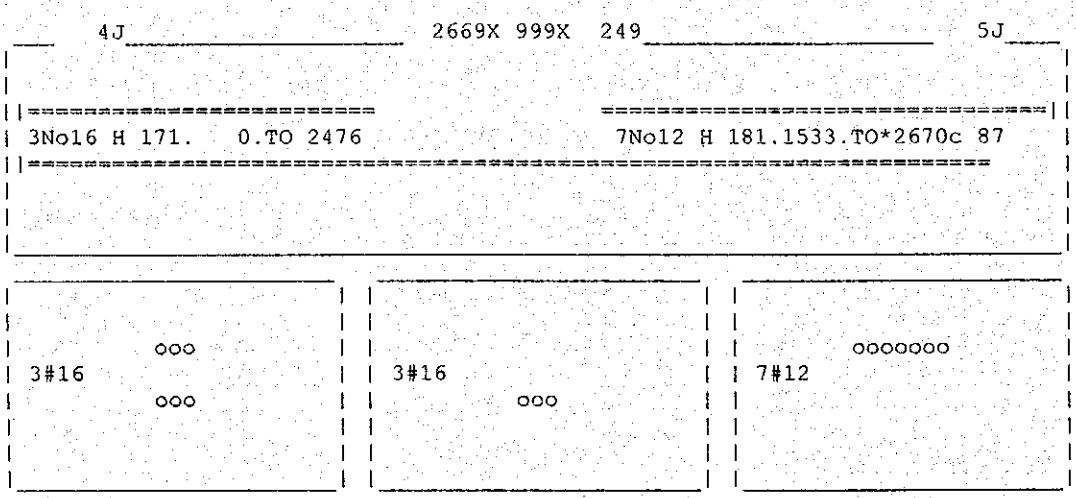
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 354.	0./ 22.	0/ 18
222.	63./ 161.	4./ 10.	27/ 18
445.	167./ 8.	11./ 1.	27/ 18
667.	237./ 0.	15./ 0.	20/ 0
890.	270./ 0.	17./ 0.	20/ 0

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
1112.	267./	0.	17./	0.	20/	0
1335.	242./	0.	15./	0.	15/	0
1557.	212./	0.	14./	0.	14/	0
1780.	147./	0.	9./	0.	14/	0
2002.	46./	123.	3./	8.	14/	27
2225.	0./	312.	0./	20.	0/	27
2447.	0./	544.	0./	34.	0/	27
2670.	0./	822.	0./	50.	0/	27

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= 51.23 KNS Vc= 144.98 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 71.28 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 334. MM



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

LEN - 2660. 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	71.	3 - 16MM	0.	2469.	YES	NO
	CRITICAL POS MOMENT= 18.10 KN-MET AT 2660.MM, LOAD 25					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 474. MMS					
2	179.	3 - 16MM	0.	700.	YES	NO
	CRITICAL NEG MOMENT= 18.15 KN-MET AT 0.MM, LOAD 25					
	REQD STEEL= 598.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
3	181.	7 - 12MM	860.	2660.	NO	YES

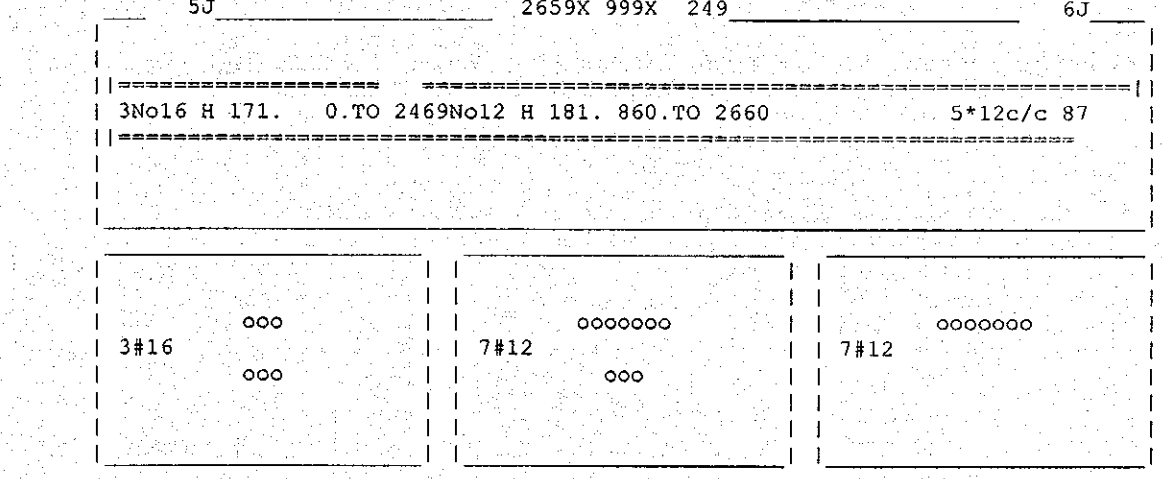
```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      45.74 KN-MET  AT  2660.MM, LOAD  20 |
|   REQD STEEL=   704.MM2, ROW= .0039, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  148. MMS          |
|   BASIC/REQD. DEVELOPMENT 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.	29./ 286.	2./ 18.	30/ 25
222.	39./ 99.	2./ 6.	30/ 25
443.	134./ 0.	9./ 0.	20/ 0
665.	212./ 0.	13./ 0.	20/ 0
887.	263./ 0.	17./ 0.	27/ 0
1108.	281./ 0.	18./ 0.	28/ 0
1330.	286./ 2.	18./ 0.	25/ 30
1552.	254./ 28.	16./ 2.	25/ 30
1773.	186./ 60.	12./ 4.	25/ 30
1995.	82./ 98.	5./ 6.	25/ 30
2217.	0./ 260.	0./ 17.	0/ 20
2438.	0./ 478.	0./ 30.	0/ 20
2660.	0./ 741.	0./ 46.	0/ 20

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= 50.15 KNS Vc= 144.98 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 68.12 KNS Vc= 144.98 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 87. MM C/C FOR 332. MM



137. CLEAR 0.065
138. DESIGN BEAM 6 7 11 12 TO 25

B E A M N O. 6 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	84.	8 - 12MM	0.	2250.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=     50.21 KN-MET  AT     0.MM, LOAD  19 |
|   REQD STEEL=   854.MM2, ROW= .0051, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  127. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   338. MMS          |
|-------------------------------------------------------------------|

  2        166.     5 - 12MM       110.         2250.        NO   YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     13.37 KN-MET  AT  1312.MM, LOAD  30 |
|   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          |
|-------------------------------------------------------------------|
```

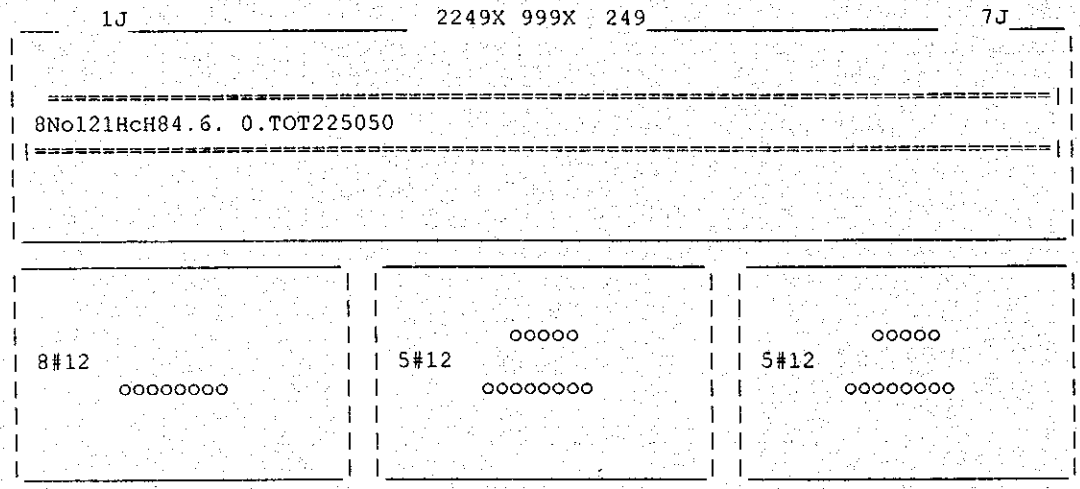
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	904./	0.	50./	0.	19/	0
187.	701./	0.	39./	0.	17/	0
375.	557./	0.	32./	0.	24/	0
562.	459./	70.	26./	4.	24/	30
750.	371./	145.	21./	8.	24/	30
937.	294./	198.	17./	12.	24/	30
1125.	227./	227.	13./	13.	24/	30
1312.	175./	230.	10./	13.	25/	30
1500.	148./	206.	9./	12.	25/	30
1687.	133./	186.	8./	11.	25/	19
1875.	130./	169.	8./	10.	25/	19
2062.	159./	137.	9./	8.	14/	26
2250.	281./	147.	16./	9.	14/	26

B E A M N O. 6 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 60.41 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 281. MM

AT END SUPPORT - Vu= 43.02 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 7 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

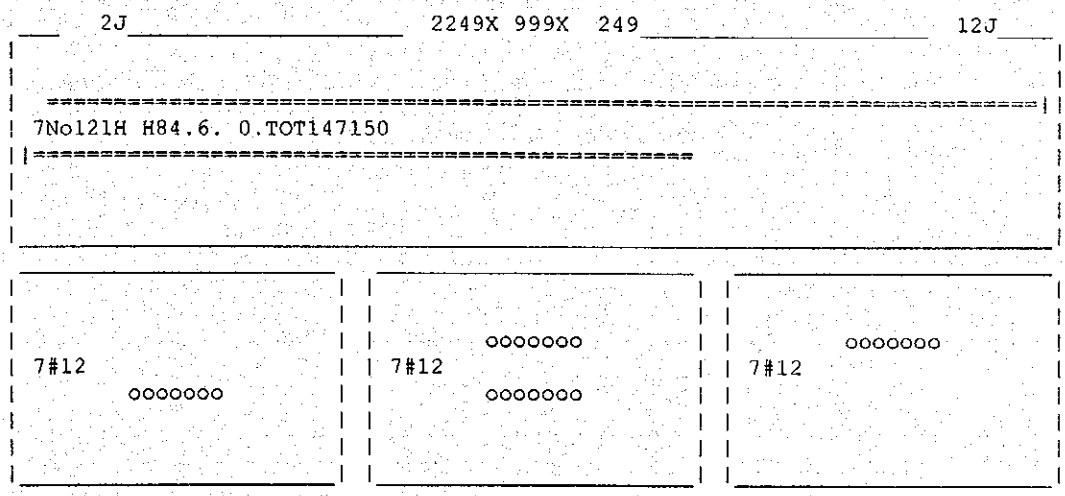
```
  1         84.     7 - 12MM          0.          1471.         YES  NO
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=     44.59 KN-MET  AT  2250.MM, LOAD  19 |
|   REQD STEEL=   763.MM2, ROW= .0046, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./  148. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   346. MMS          |
|-------------------------------------------------------------------|

  2        166.     7 - 12MM        110.          2250.         NO   YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     45.75 KN-MET  AT  2250.MM, LOAD  27 |
|   REQD STEEL=   774.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.	797./	0.	45./	0.	19/	0
187.	661./	0.	37./	0.	19/	0
375.	527./	0.	30./	0.	19/	0
562.	395./	16.	23./	1.	19/	25
750.	266./	45.	15./	3.	19/	25
937.	139./	75.	8./	4.	19/	25
1125.	13./	113.	1./	7.	19/	24
1312.	0./	193.	0./	11.	0/	24
1500.	0./	297.	0./	17.	0/	27
1687.	0./	425.	0./	24.	0/	27
1875.	0./	554.	0./	31.	0/	27
2062.	0./	685.	0./	39.	0/	27
2250.	0./	819.	0./	46.	0/	27

B E A M N O. 7 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 38.94 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 38.94 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 - 2250. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

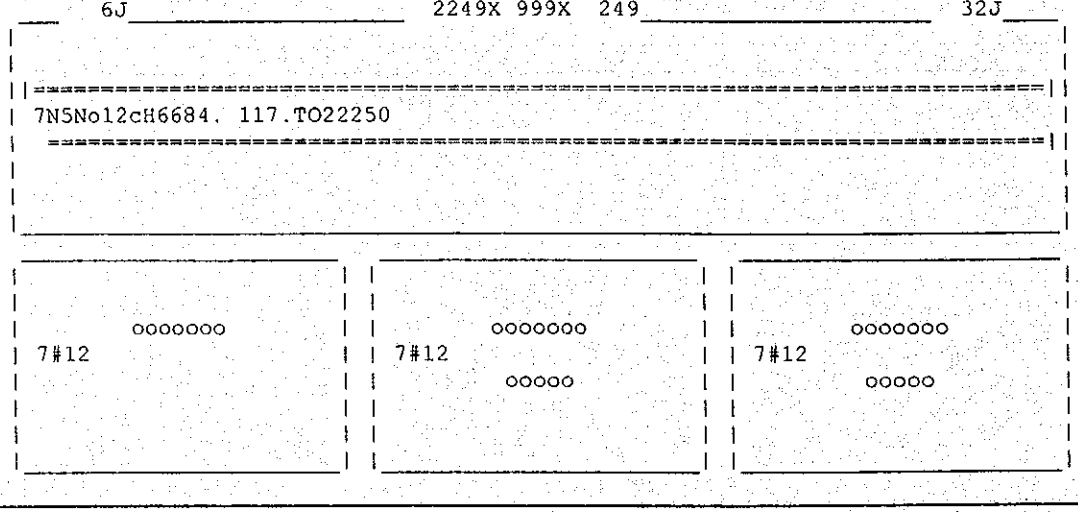
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	117.	2250.	NO	YES
	CRITICAL POS MOMENT= 13.42 KN-MET AT 1312.MM, LOAD 30					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	7 - 12MM	0.	2250.	YES	YES
	CRITICAL NEG MOMENT= 45.74 KN-MET AT 0.MM, LOAD 20					
	REQD STEEL= 774.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.	0./	819.	0./	46.	0/	20
187.	0./	615.	0./	35.	0/	20
375.	0./	466.	0./	27.	0/	27
562.	69./	363.	4./	21.	30/	27
750.	145./	269.	8./	16.	30/	27
937.	198./	186.	12./	11.	30/	27
1125.	228./	114.	13./	7.	30/	27
1312.	231./	62.	13./	4.	30/	25
1500.	207./	41.	12./	2.	30/	25
1687.	154./	33.	9./	2.	30/	25
1875.	117./	35.	7./	2.	20/	25
2062.	73./	71.	4./	4.	27/	18
2250.	70./	206.	4./	12.	27/	30

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= 56.43 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 94. MM
AT END SUPPORT - Vu= 42.91 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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

LEN - 534. 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.	534.	YES	YES
	CRITICAL POS MOMENT= 16.27 KN-MET AT 534.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./ 352. MMS					
2	164.	3 - 16MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 34.11 KN-MET AT 534.MM, LOAD 26					
	REQD STEEL= 577.MM2, ROW= .0035, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 441. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					

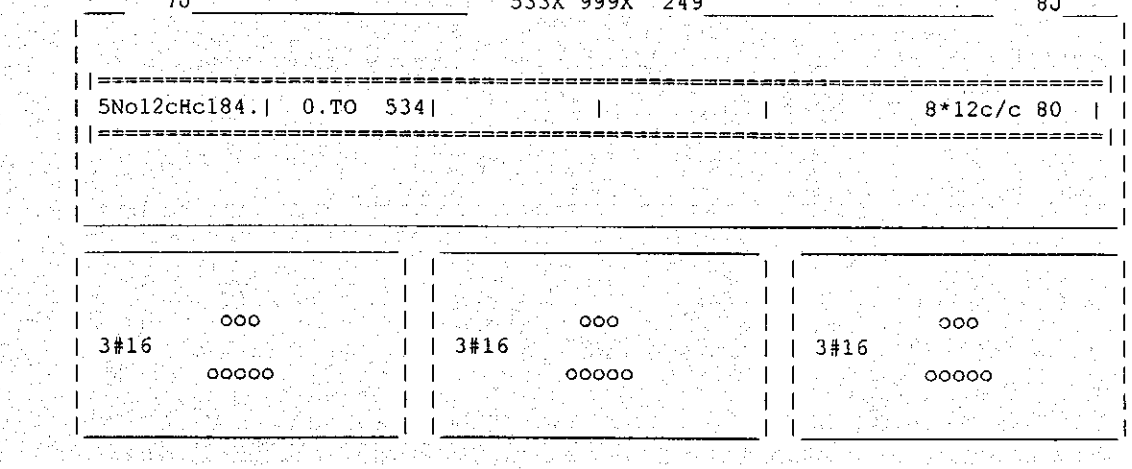
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	281./	147.	16./	9.	14/	26
44.	227./	183.	13./	11.	14/	26
89.	179./	219.	10./	13.	30/	26
133.	164./	255.	10./	15.	30/	26
178.	149./	292.	9./	17.	30/	26
222.	133./	329.	8./	19.	30/	26
267.	117./	367.	7./	21.	30/	26
311.	102./	405.	6./	23.	30/	26
356.	85./	443.	5./	25.	30/	26
400.	69./	482.	4./	28.	30/	26
445.	52./	522.	3./	30.	30/	26
489.	35./	562.	2./	32.	30/	26
534.	18./	602.	1./	34.	30/	26

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= 72.04 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM

AT END SUPPORT - Vu= 73.68 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM



11-329

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

LEN - 534. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

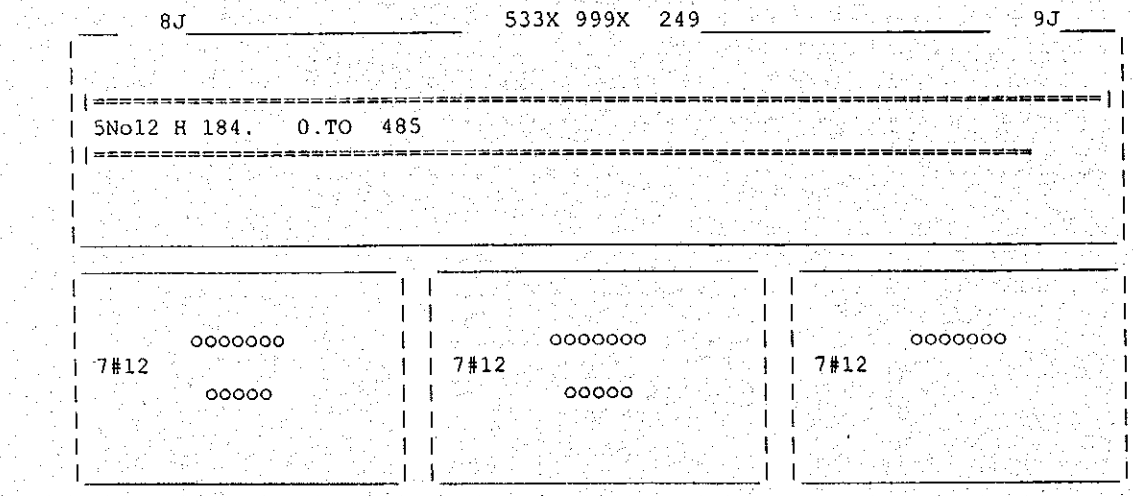
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	0.	485.	YES	NO
	CRITICAL POS MOMENT= 1.07 KN-MET AT 534.MM, LOAD 30					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	7 - 12MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 42.17 KN-MET AT 534.MM, LOAD 24					
	REQD STEEL= 711.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.	18./	602.	1./	34.	30/ 26
44.	13./	604.	1./	34.	30/ 26
89.	7./	607.	0./	34.	30/ 26
133.	1./	613.	0./	35.	30/ 24
178.	0./	627.	0./	35.	0/ 24
222.	0./	641.	0./	36.	0/ 24
267.	0./	656.	0./	37.	0/ 24
311.	0./	671.	0./	38.	0/ 24
356.	0./	687.	0./	39.	0/ 24
400.	0./	702.	0./	40.	0/ 24
445.	0./	719.	0./	40.	0/ 24
489.	0./	735.	0./	41.	0/ 24
534.	0./	752.	0./	42.	0/ 24

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= 22.18 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 23.83 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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

LEN - 534. 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.	7 - 12MM	0.	534.	YES	YES

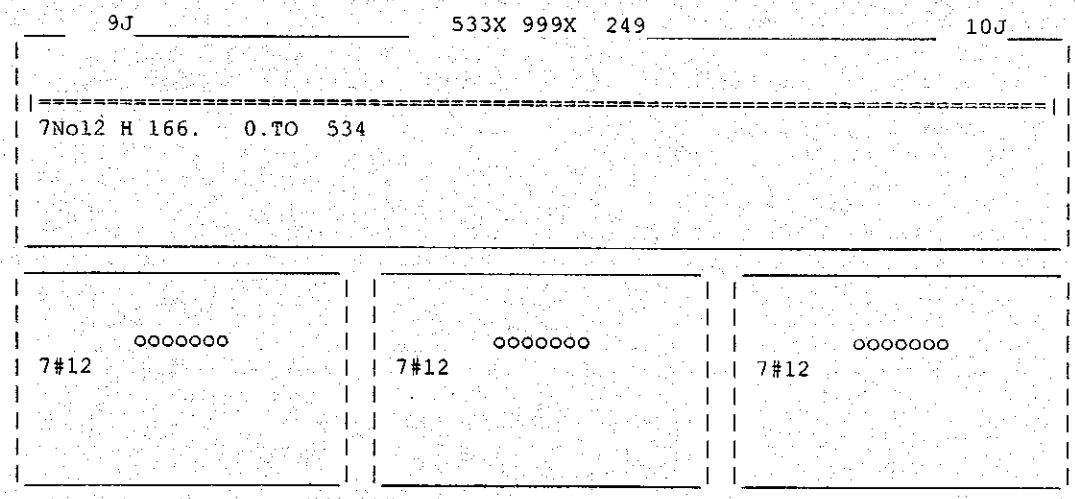
CRITICAL NEG MOMENT= 42.17 KN-MET AT 0.MM, LOAD 24
REQD STEEL= 711.MM2, ROW= .0043, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 148. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 752.	0./ 42.	0/ 24
44.	0./ 723.	0./ 41.	0/ 24
89.	0./ 694.	0./ 39.	0/ 24
133.	0./ 666.	0./ 38.	0/ 24
178.	0./ 639.	0./ 36.	0/ 24
222.	0./ 612.	0./ 35.	0/ 24
267.	0./ 585.	0./ 33.	0/ 24
311.	0./ 558.	0./ 32.	0/ 24
356.	0./ 532.	0./ 30.	0/ 24
400.	0./ 506.	0./ 29.	0/ 24
445.	0./ 481.	0./ 27.	0/ 24
489.	0./ 456.	0./ 26.	0/ 24
534.	0./ 431.	0./ 25.	0/ 24

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= 39.91 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 38.26 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 - 534. 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.	534.	YES	YES
	CRITICAL POS MOMENT= 20.32 KN-MET AT 534.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					
2	166.	5 - 12MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 24.69 KN-MET AT 0.MM, LOAD 24					
	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					

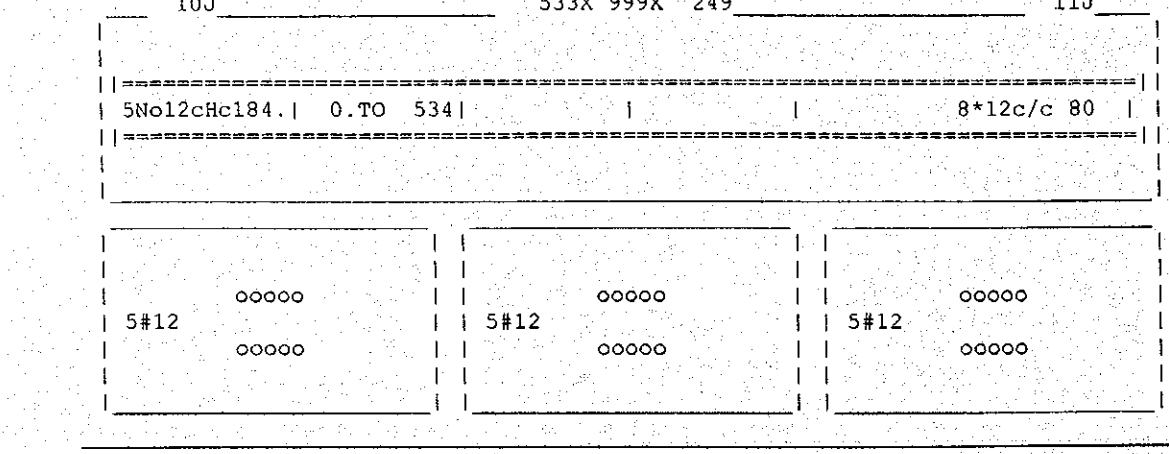
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	0./	431.	0./	25.	0/	24
44.	0./	378.	0./	22.	0/	24
89.	0./	325.	0./	19.	0/	24
133.	0./	272.	0./	16.	0/	24
178.	0./	221.	0./	13.	0/	24
222.	6./	170.	0./	10.	19/	24
267.	55./	119.	3./	7.	19/	24
311.	104./	69.	6./	4.	19/	24
356.	153./	20.	9./	1.	19/	25
400.	202./	0.	12./	0.	19/	0
445.	251./	0.	15./	0.	19/	0
489.	301./	0.	17./	0.	26/	0
534.	353./	0.	20./	0.	26/	0

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= 68.13 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM

AT END SUPPORT - Vu= 66.49 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM



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

LEN - 534. 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.	4 - 20MM	0.	534.	YES	YES

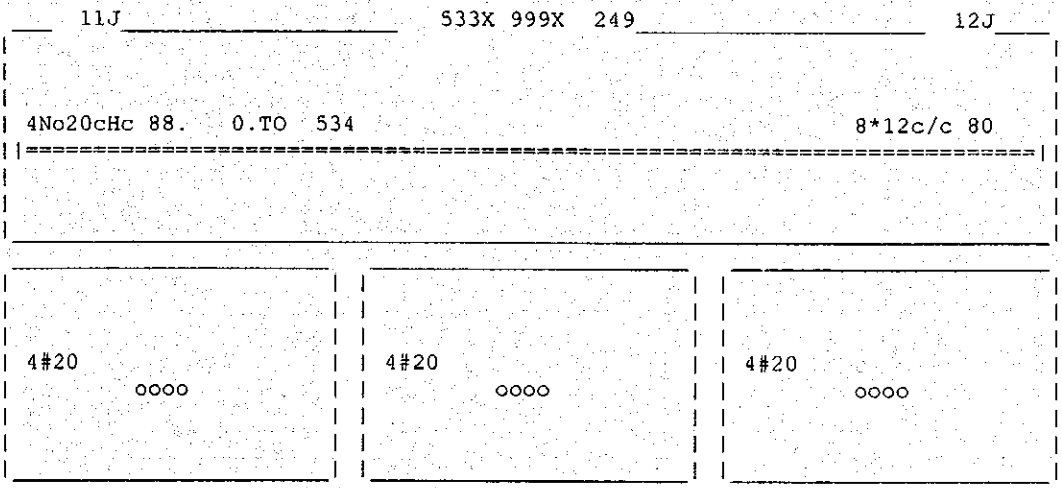
CRITICAL POS MOMENT= 71.68 KN-MET AT 534.MM, LOAD 26
REQD STEEL= 1249.MM2, ROW= .0075, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 293. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 493./ 594. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	353./	0.	20./	0.	26/	0
44.	431./	0.	25./	0.	26/	0
89.	509./	0.	29./	0.	26/	0
133.	588./	0.	33./	0.	26/	0
178.	668./	0.	38./	0.	26/	0
222.	748./	0.	42./	0.	26/	0
267.	829./	0.	46./	0.	26/	0
311.	910./	0.	51./	0.	26/	0
356.	992./	0.	55./	0.	26/	0
400.	1075./	0.	59./	0.	26/	0
445.	1158./	0.	63./	0.	26/	0
489.	1242./	0.	67./	0.	26/	0
534.	1327./	0.	72./	0.	26/	0

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= 99.21 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM
AT END SUPPORT - Vu= 97.56 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM



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

LEN - 534. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

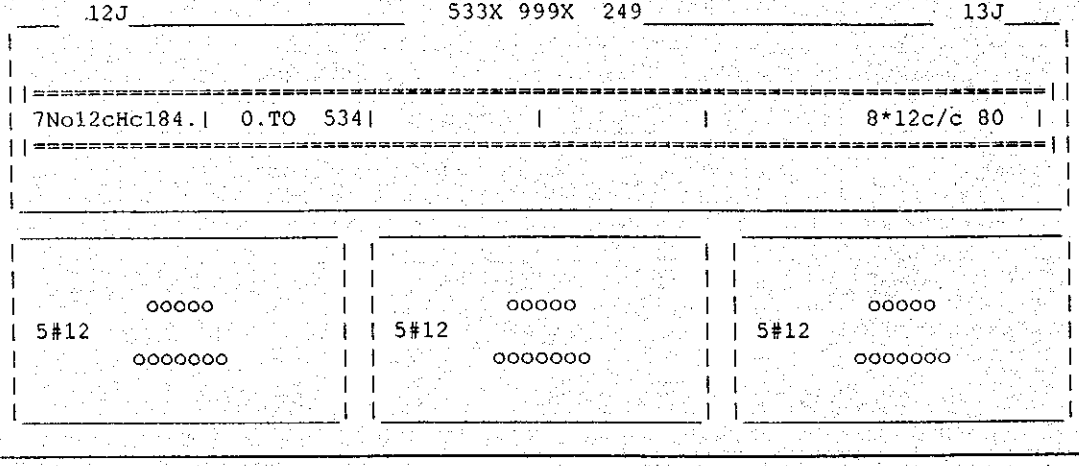
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	7 - 12MM	0.	534.	YES	YES
	CRITICAL POS MOMENT= 40.54 KN-MET AT 0.MM, LOAD 25					
	REQD STEEL= 682.MM2, ROW= .0041, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 148. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 309. MMS					
2	166.	5 - 12MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 10.07 KN-MET AT 534.MM, LOAD 20					
	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.	721./	0.	41./	0.	25/	0
44.	670./	0.	38./	0.	25/	0
89.	619./	0.	35./	0.	25/	0
133.	568./	0.	32./	0.	25/	0
178.	518./	0.	29./	0.	25/	0
222.	467./	0.	27./	0.	25/	0
267.	416./	0.	24./	0.	25/	0
311.	366./	26.	21./	2.	25/	20
356.	315./	55.	18./	3.	25/	20
400.	265./	84.	15./	5.	25/	20
445.	214./	113.	12./	7.	25/	20
489.	164./	143.	10./	8.	25/	20
534.	114./	173.	7./	10.	25/	20

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= 62.64 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM
AT END SUPPORT - Vu= 64.28 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 534. MM



B E A M N O. 18 D E S I G N R E S U L T S - FLEXURE

LEN - 534. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

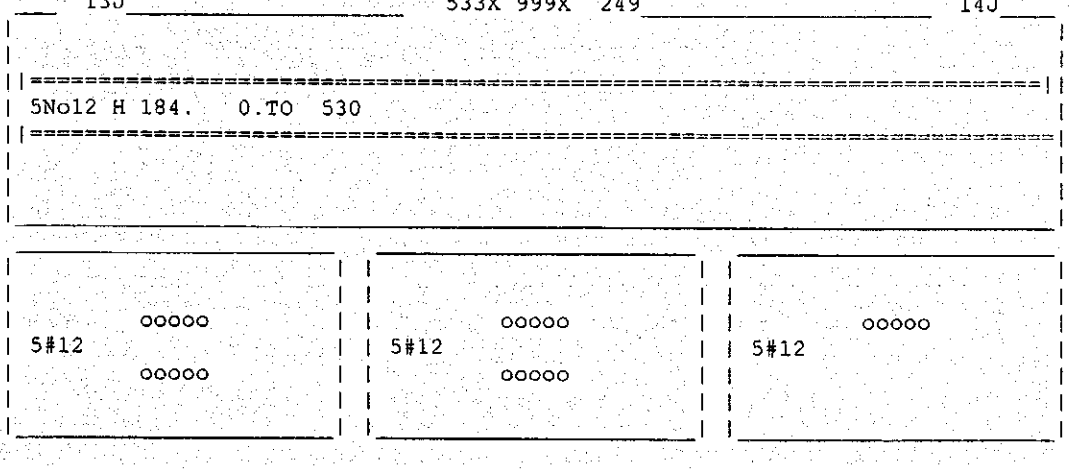
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	0.	530.	YES	NO
	CRITICAL POS MOMENT= 6.65 KN-MET AT 534.MM, LOAD 25					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	5 - 12MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 15.17 KN-MET AT 534.MM, LOAD 20					
	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.	114./	173.	7./	10.	25/	20
44.	90./	179.	5./	10.	25/	20
89.	66./	185.	4./	11.	25/	20
133.	41./	192.	2./	11.	25/	20
178.	17./	198.	1./	12.	25/	20
222.	0./	205.	0./	12.	0/	20
267.	0./	213.	0./	12.	0/	20
311.	0./	220.	0./	13.	0/	20
356.	0./	228.	0./	13.	0/	20
400.	0./	236.	0./	14.	0/	20
445.	0./	245.	0./	14.	0/	20
489.	0./	253.	0./	15.	0/	20
534.	0./	262.	0./	15.	0/	20

B E A M N O. 18 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 32.34 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 33.98 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 19 D E S I G N R E S U L T S - FLEXURE

LEN - 534. 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.	534.	YES	YES

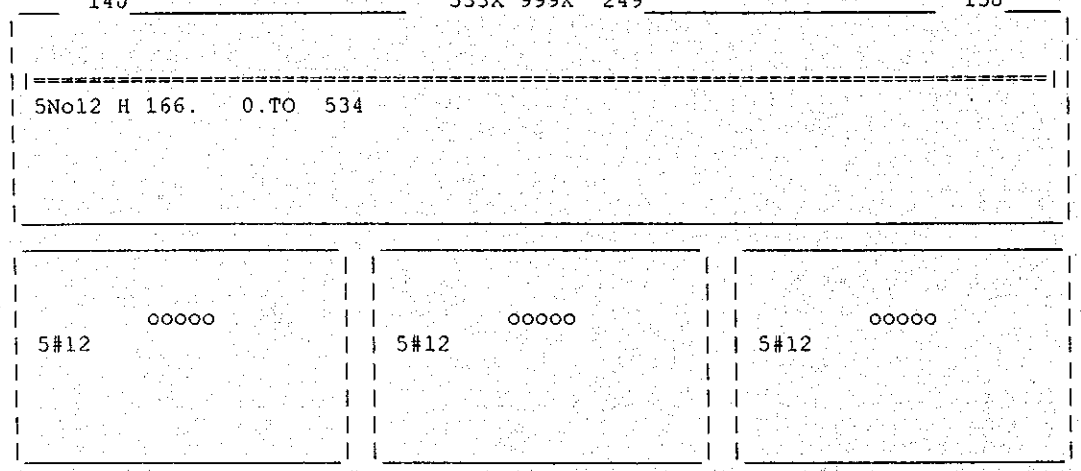
CRITICAL NEG MOMENT= 15.17 KN-MET AT 0.MM, LOAD 20
REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 262.	0./ 15.	0/ 20
44.	0./ 250.	0./ 14.	0/ 17
89.	0./ 241.	0./ 14.	0/ 17
133.	0./ 233.	0./ 14.	0/ 17
178.	0./ 225.	0./ 13.	0/ 17
222.	0./ 217.	0./ 13.	0/ 17
267.	0./ 210.	0./ 12.	0/ 17
311.	0./ 209.	0./ 12.	0/ 18
356.	0./ 212.	0./ 12.	0/ 18
400.	0./ 215.	0./ 12.	0/ 18
445.	0./ 218.	0./ 13.	0/ 18
489.	0./ 221.	0./ 13.	0/ 18
534.	0./ 225.	0./ 13.	0/ 18

B E A M N O. 19 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 19.21 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 17.57 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 20 D E S I G N R E S U L T S - FLEXURE

LEN - 534. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

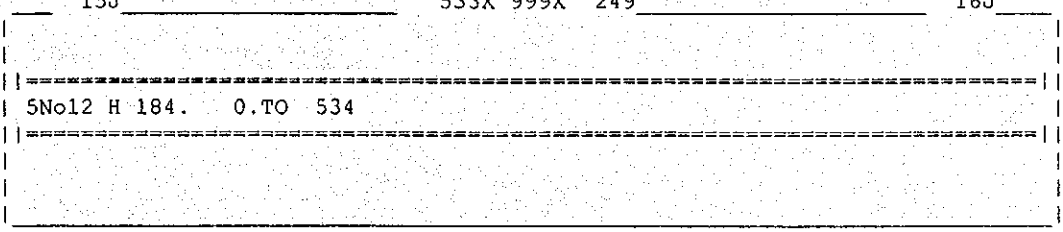
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	0.	534.	YES	YES
	CRITICAL POS MOMENT= 19.68 KN-MET AT 534.MM, LOAD 20					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	5 - 12MM	0.	534.	YES	YES
	CRITICAL NEG MOMENT= 13.03 KN-MET AT 0.MM, LOAD 18					
	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					

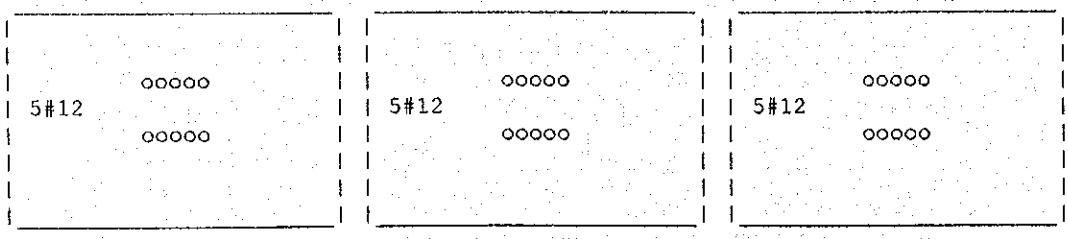
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 225.	0./ 13.	0/ 18
44.	0./ 202.	0./ 12.	0/ 18
89.	0./ 181.	0./ 11.	0/ 18
133.	21./ 159.	1./ 9.	27/ 18
178.	57./ 138.	3./ 8.	27/ 18
222.	93./ 117.	5./ 7.	27/ 18
267.	128./ 96.	7./ 6.	27/ 18
311.	164./ 76.	10./ 4.	27/ 18
356.	199./ 56.	12./ 3.	20/ 25
400.	235./ 37.	14./ 2.	20/ 25
445.	271./ 18.	16./ 1.	20/ 25
489.	306./ 0.	18./ 0.	20/ 0
534.	342./ 0.	20./ 0.	20/ 0

B E A M N O. 20 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 47.70 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 46.05 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.





B E A M N O. 21 D E S I G N R E S U L T S - FLEXURE

LEN - 524. 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.	524.	YES	YES

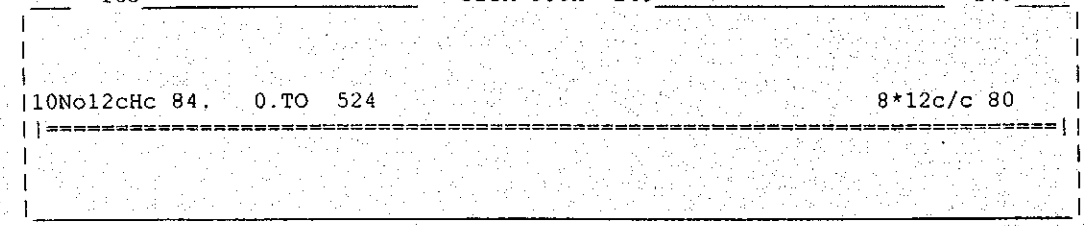
CRITICAL POS MOMENT= 59.50 KN-MET AT 524.MM, LOAD 20
REQD STEEL= 1022.MM2, ROW= .0061, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 98. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 324. MMS

REQUIRED REINF. STEEL SUMMARY :

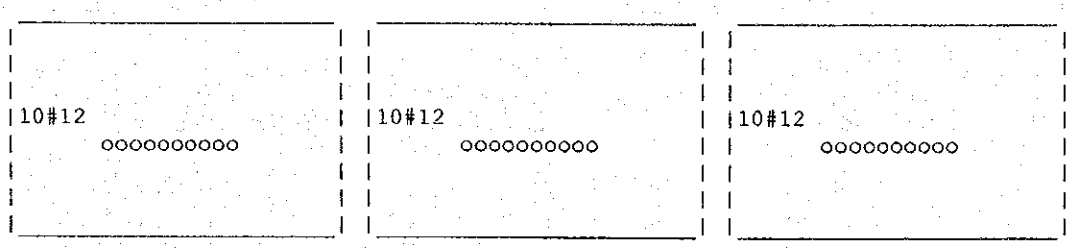
SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	342./	0.	20./	0.	20/	0
44.	402./	0.	23./	0.	20/	0
87.	463./	0.	26./	0.	20/	0
131.	524./	0.	30./	0.	20/	0
175.	585./	0.	33./	0.	20/	0
218.	647./	0.	37./	0.	20/	0
262.	708./	0.	40./	0.	20/	0
306.	770./	0.	43./	0.	20/	0
349.	832./	0.	46./	0.	20/	0
393.	895./	0.	50./	0.	20/	0
437.	957./	0.	53./	0.	20/	0
480.	1020./	0.	56./	0.	20/	0
524.	1084./	0.	59./	0.	20/	0

B E A M N O. 21 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 76.76 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 524. MM
AT END SUPPORT - Vu= 75.19 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 524. MM



11-33c



B E A M N O. 22 D E S I G N R E S U L T S - FLEXURE

LEN - 536. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

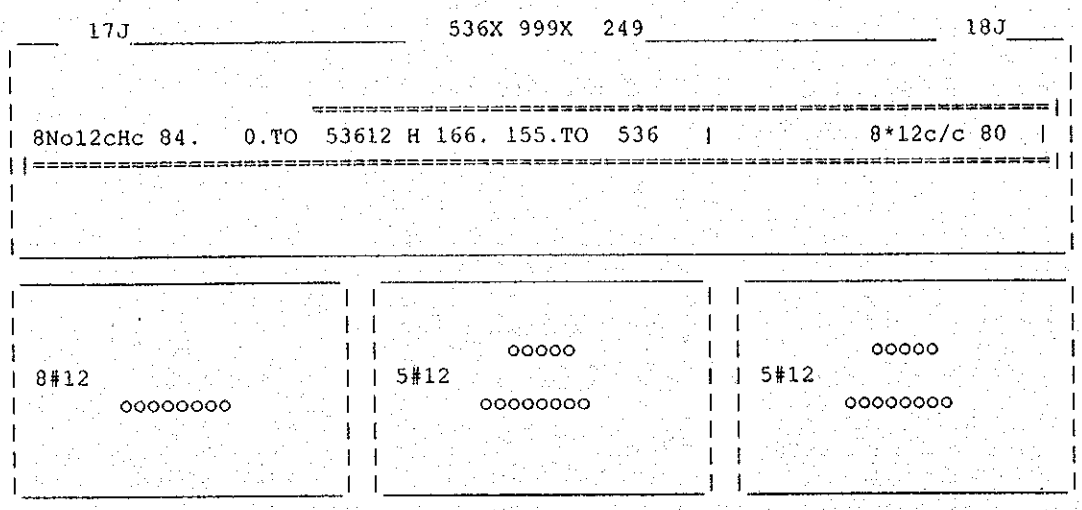
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	8 - 12MM	0.	536.	YES	YES
	CRITICAL POS MOMENT= 47.53 KN-MET AT 0.MM, LOAD 19					
	REQD STEEL= 806.MM2, ROW= .0048, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 127. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 319. MMS					
2	166.	5 - 12MM	155.	536.	NO	YES
	CRITICAL NEG MOMENT= 1.85 KN-MET AT 536.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./ 359. MMS					

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	853./	0.	48./	0.	19/	0
45.	797./	0.	45./	0.	19/	0
89.	742./	0.	42./	0.	19/	0
134.	686./	0.	39./	0.	19/	0
179.	631./	0.	36./	0.	19/	0
224.	576./	0.	33./	0.	19/	0
268.	521./	0.	30./	0.	19/	0
313.	467./	0.	27./	0.	19/	0
358.	412./	0.	24./	0.	19/	0
402.	357./	0.	21./	0.	19/	0
447.	303./	0.	17./	0.	19/	0
492.	249./	0.	14./	0.	19/	0
536.	194./	31.	11./	2.	19/	25

B E A M N O. 22 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 66.71 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 536. MM
AT END SUPPORT - Vu= 68.38 KNS Vc= 132.52 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 80. MM C/C FOR 536. MM



B E A M N O. 23 D E S I G N R E S U L T S - FLEXURE

LEN - 536. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

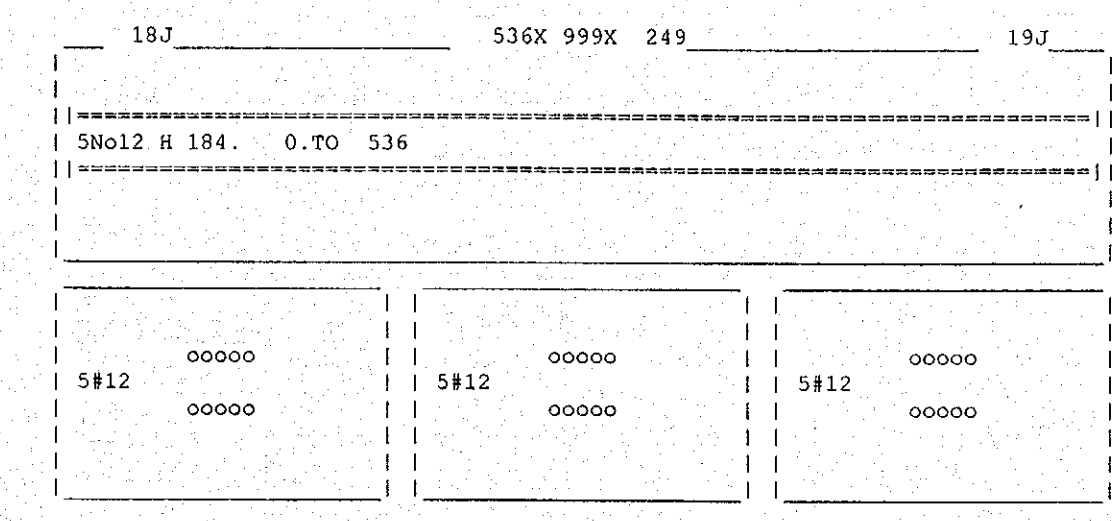
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	0.	536.	YES	YES
	CRITICAL POS MOMENT= 11.29 KN-MET AT 536.MM, LOAD 19					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	5 - 12MM	0.	536.	YES	YES
	CRITICAL NEG MOMENT= 15.44 KN-MET AT 536.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./ 359. MMS					

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	194./	31.	11./	2.	19/	25
45.	166./	49.	10./	3.	19/	25
89.	138./	68.	8./	4.	19/	25
134.	109./	86.	6./	5.	19/	25
179.	80./	105.	5./	6.	19/	25
224.	51./	124.	3./	7.	19/	25
268.	22./	143.	1./	8.	19/	25
313.	0./	163.	0./	10.	0/	25
358.	0./	183.	0./	11.	0/	25
402.	0./	204.	0./	12.	0/	25
447.	0./	224.	0./	13.	0/	25
492.	0./	245.	0./	14.	0/	25
536.	0./	267.	0./	15.	0/	25

B E A M N O. 23 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 37.39 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 39.06 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 24 D E S I G N R E S U L T S - FLEXURE

LEN - 536. 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.	536.	YES	YES

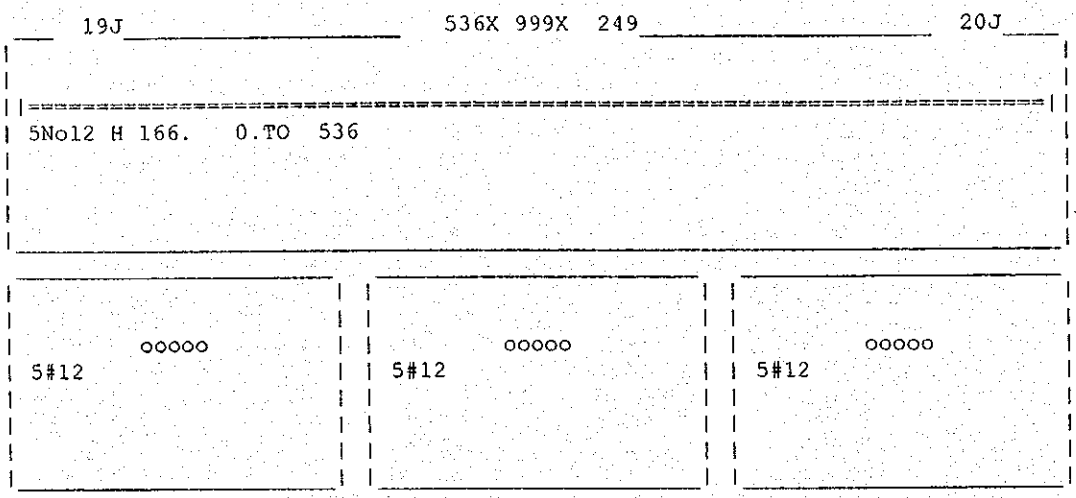
CRITICAL NEG MOMENT= 15.44 KN-MET AT 0.MM, LOAD 25
REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 267.	0./ 15.	0/ 25
45.	0./ 263.	0./ 15.	0/ 25
89.	0./ 260.	0./ 15.	0/ 25
134.	0./ 257.	0./ 15.	0/ 25
179.	0./ 255.	0./ 15.	0/ 25
224.	0./ 252.	0./ 15.	0/ 25
268.	0./ 250.	0./ 14.	0/ 25
313.	0./ 248.	0./ 14.	0/ 25
358.	0./ 248.	0./ 14.	0/ 23
402.	0./ 251.	0./ 15.	0/ 23
447.	0./ 254.	0./ 15.	0/ 23
492.	0./ 257.	0./ 15.	0/ 23
536.	0./ 261.	0./ 15.	0/ 23

B E A M N O. 24 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 8.55 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 10.21 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



B E A M N O. 25 D E S I G N R E S U L T S - FLEXURE

LEN - 536. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

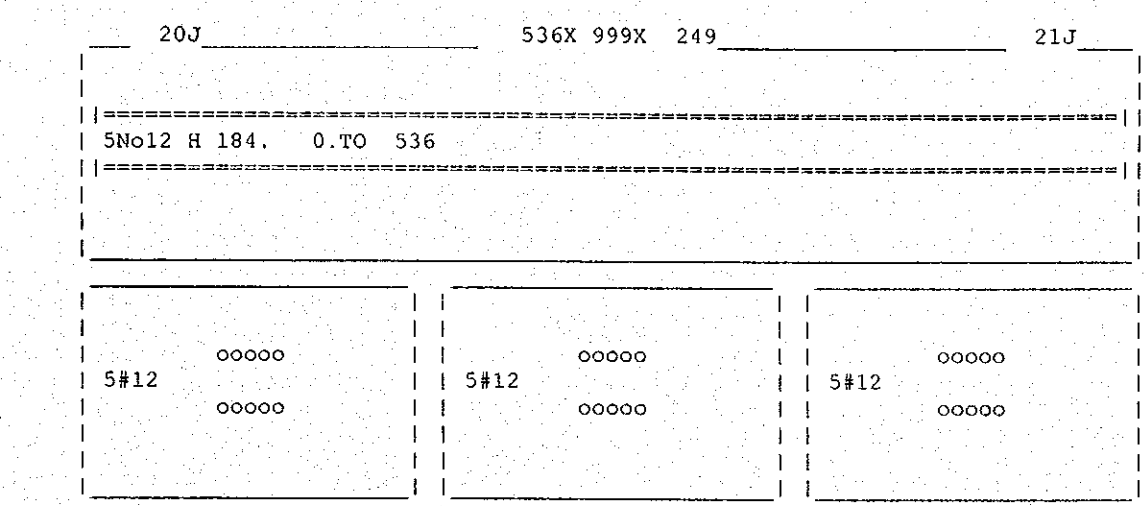
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	5 - 12MM	0.	536.	YES	YES
	CRITICAL POS MOMENT= 5.55 KN-MET AT 536.MM, LOAD 20					
	REQD STEEL= 554.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 222. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 352. MMS					
2	166.	5 - 12MM	0.	536.	YES	YES
	CRITICAL NEG MOMENT= 15.12 KN-MET AT 0.MM, LOAD 23					
	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./	261.	0./	15.	0/	23
45.	0./	240.	0./	14.	0/	23
89.	0./	218.	0./	13.	0/	23
134.	0./	201.	0./	12.	0/	26
179.	0./	186.	0./	11.	0/	26
224.	0./	171.	0./	10.	0/	26
268.	0./	156.	0./	9.	0/	26
313.	0./	141.	0./	8.	0/	26
358.	8./	127.	0./	7.	20/	26
402.	30./	113.	2./	7.	20/	26
447.	52./	99.	3./	6.	20/	26
492.	73./	86.	4./	5.	20/	26
536.	95./	72.	6./	4.	20/	26

B E A M N O. 25 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 34.52 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 32.86 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



139. END CONC DESIGN
140. FINISH

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

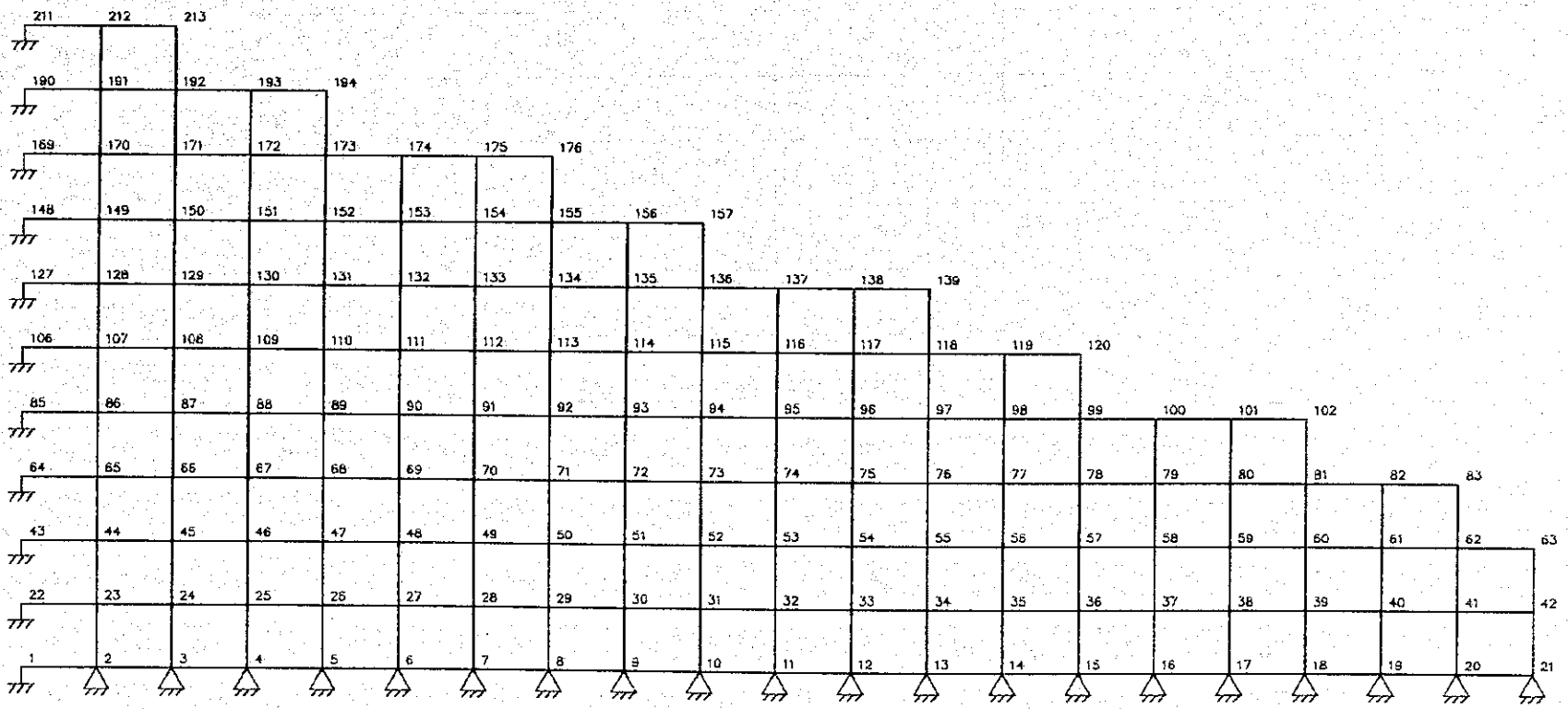
**** DATE= JAN 30,2000 TIME= 11:45:34 ****

```
**********************************************************
*        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   *
**********************************************************
```

2-1-7 BOX CULVERT AT CH.6+496

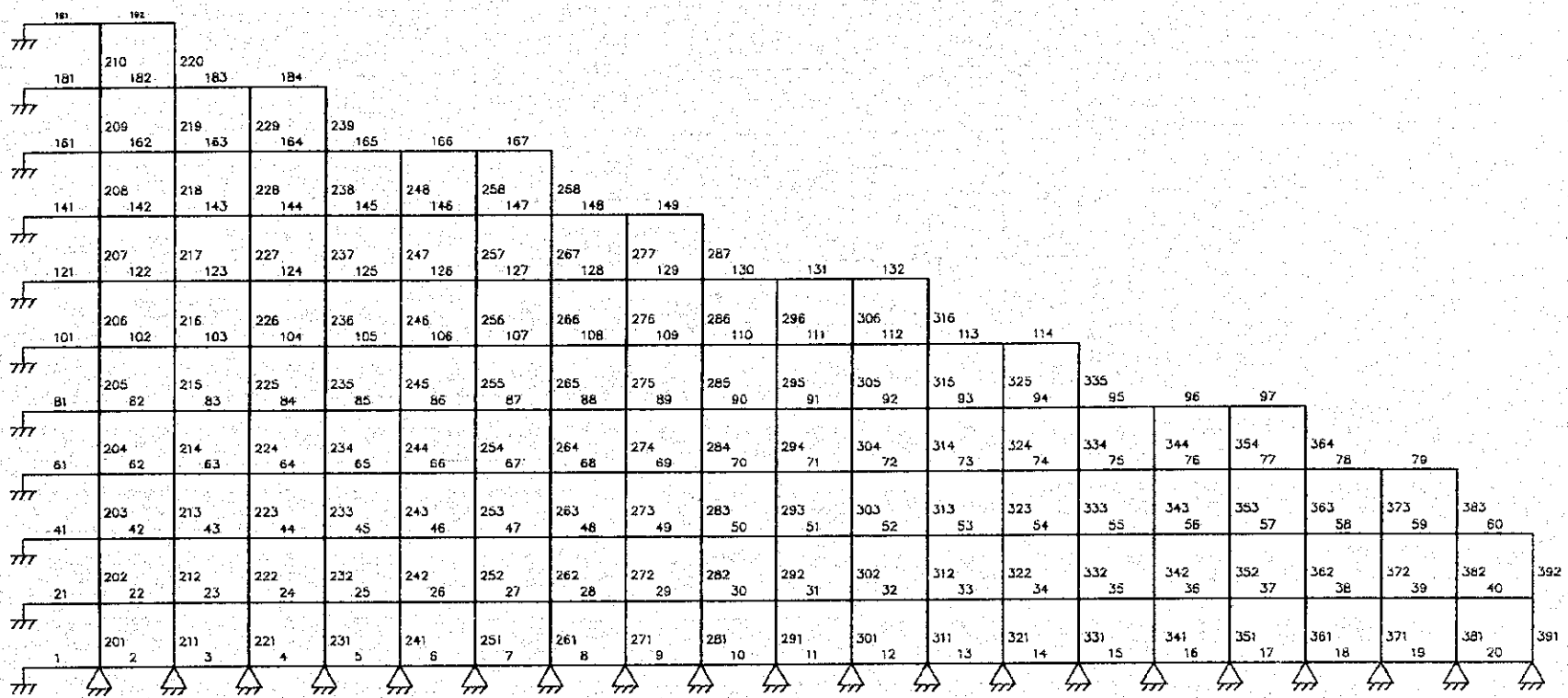
(2) WING WALL

WING WALL AT CH. 5+496



WING WALL WITH JOINT NUMBER

WING WALL AT CH. 5+496



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        ****************************************************
        *                                                  *
        *           S T A A D - III                        *
        *           Revision 22.3a                         *
        *           Proprietary Program of                 *
        *           Research Engineers, Inc.               *
        *           Date=    JAN 30, 2000                  *
        *           Time=     9:19:22                      *
        *                                                  *
        *      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   8.30 0.000 0.000
  6. R          2 0.000 0.000 0.363
  7. 64     0.000 0.000 1.088    83  7.885 0.000 1.088
  8. 85     0.000 0.000 1.450   102  7.055 0.000 1.450
  9. 106    0.000 0.000 1.813   120  5.810 0.000 1.813
 10. 127    0.000 0.000 2.175   139  4.980 0.000 2.175
 11. 148    0.000 0.000 2.538   157  3.735 0.000 2.538
 12. 169    0.000 0.000 2.900   176  2.905 0.000 2.900
 13. 190    0.000 0.000 3.263   194  1.660 0.000 3.263
 14. 211    0.000 0.000 3.625   213  0.830 0.000 3.625
 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    2.000  ZD    0.3   IX    1E-06
 49. 21    TO    40    PRI   YD    0.250  ZD    0.363 IX    1E-06
 50. 41    TO    60    PRI   YD    0.250  ZD    0.363 IX    1E-06
 51. 61    TO    79    PRI   YD    0.250  ZD    0.363 IX    1E-06
 52. 81    TO    97    PRI   YD    0.250  ZD    0.363 IX    1E-06
 53. 101   TO    114   PRI   YD    0.250  ZD    0.363 IX    1E-06
 54. 121   TO    132   PRI   YD    0.250  ZD    0.363 IX    1E-06
 55. 141   TO    149   PRI   YD    0.250  ZD    0.363 IX    1E-06
 56. 161   TO    167   PRI   YD    0.250  ZD    0.363 IX    1E-06
 57. 181   TO    184   PRI   YD    0.250  ZD    0.363 IX    1E-06
 58. 191   TO    192   PRI   YD    0.250  ZD    0.363 IX    1E-06
 59. *VERTICAL
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 60. 201   TO   210   PRI   YD   0.250   ZD   0.415 IX   1E-06
 61. 211   TO   220   PRI   YD   0.250   ZD   0.415 IX   1E-06
 62. 221   TO   229   PRI   YD   0.250   ZD   0.415 IX   1E-06
 63. 231   TO   239   PRI   YD   0.250   ZD   0.415 IX   1E-06
 64. 241   TO   248   PRI   YD   0.250   ZD   0.415 IX   1E-06
 65. 251   TO   258   PRI   YD   0.250   ZD   0.415 IX   1E-06
 66. 261   TO   268   PRI   YD   0.250   ZD   0.415 IX   1E-06
 67. 271   TO   277   PRI   YD   0.250   ZD   0.415 IX   1E-06
 68. 281   TO   287   PRI   YD   0.250   ZD   0.415 IX   1E-06
 69. 291   TO   296   PRI   YD   0.250   ZD   0.415 IX   1E-06
 70. 301   TO   306   PRI   YD   0.250   ZD   0.415 IX   1E-06
 71. 311   TO   316   PRI   YD   0.250   ZD   0.415 IX   1E-06
 72. 321   TO   325   PRI   YD   0.250   ZD   0.415 IX   1E-06
 73. 331   TO   335   PRI   YD   0.250   ZD   0.415 IX   1E-06
 74. 341   TO   344   PRI   YD   0.250   ZD   0.415 IX   1E-06
 75. 351   TO   354   PRI   YD   0.250   ZD   0.415 IX   1E-06
 76. 361   TO   364   PRI   YD   0.250   ZD   0.415 IX   1E-06
 77. 371   TO   373   PRI   YD   0.250   ZD   0.415 IX   1E-06
 78. 381   TO   383   PRI   YD   0.250   ZD   0.415 IX   1E-06
 79. 391   TO   392   PRI   YD   0.250   ZD   0.415 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    -12.78
 92. 3      FY    -12.40
 93. 4      FY    -12.03
 94. 5      FY    -11.65
 95. 6      FY    -11.27
 96. 7      FY    -10.90
 97. 8      FY    -10.52
 98. 9      FY    -10.14
 99. 10     FY     -9.76
100. 11     FY     -9.39
101. 12     FY     -9.01
102. 13     FY     -8.63
103. 14     FY     -8.26
104. 15     FY     -7.88
105. 16     FY     -7.50
106. 17     FY     -7.13
107. 18     FY      0.00
108. 19     FY      0.00
109. 20     FY      0.00
110. 21     FY      0.00
111. 23     FY     -8.07
112. 24     FY     -7.78
113. 25     FY     -7.50
114. 26     FY     -7.21
115. 27     FY     -6.93
116. 28     FY     -6.65
117. 29     FY     -6.36
118. 30     FY     -6.08
119. 31     FY     -5.79
120. 32     FY     -5.51
121. 33     FY     -5.23
122. 34     FY     -4.94
123. 35     FY     -4.66
124. 36     FY     -4.37
125. 37     FY     -4.09
126. 38     FY     -3.81
127. 39     FY      0.00
128. 40     FY      0.00
129. 41     FY      0.00
130. 42     FY      0.00
131. 44     FY     -6.82
132. 45     FY     -6.54
```

133. 46	FY	-6.26
134. 47	FY	-5.97
135. 48	FY	-5.69
136. 49	FY	-5.40
137. 50	FY	-5.12
138. 51	FY	-4.84
139. 52	FY	-4.55
140. 53	FY	-4.27
141. 54	FY	-3.98
142. 55	FY	-3.70
143. 56	FY	-3.42
144. 57	FY	-3.13
145. 58	FY	-2.85
146. 59	FY	-2.57
147. 60	FY	0.00
148. 61	FY	0.00
149. 62	FY	0.00
150. 63	FY	0.00
151. 65	FY	-5.58
152. 66	FY	-5.30
153. 67	FY	-5.02
154. 68	FY	-4.73
155. 69	FY	-4.45
156. 70	FY	-4.16
157. 71	FY	-3.88
158. 72	FY	-3.60
159. 73	FY	-3.31
160. 74	FY	-3.03
161. 75	FY	-2.74
162. 76	FY	-2.46
163. 77	FY	-2.18
164. 78	FY	-1.89
165. 79	FY	-1.61
166. 80	FY	-1.32
167. 81	FY	0.00
168. 82	FY	0.00
169. 83	FY	0.00
170. 86	FY	-4.34
171. 87	FY	-4.06
172. 88	FY	-3.77
173. 89	FY	-3.49
174. 90	FY	-3.21
175. 91	FY	-2.92
176. 92	FY	-2.64
177. 93	FY	-2.35
178. 94	FY	-2.07
179. 95	FY	-1.79
180. 96	FY	-1.50
181. 97	FY	-1.22
182. 98	FY	-0.93
183. 99	FY	-0.65
184. 100	FY	-0.37
185. 101	FY	-0.08
186. 102	FY	0.00
187. 107	FY	-3.27
188. 108	FY	-2.98
189. 109	FY	-2.70
190. 110	FY	-2.41
191. 111	FY	-2.13
192. 112	FY	-1.85
193. 113	FY	-1.56
194. 114	FY	-1.28
195. 115	FY	-0.99
196. 116	FY	-0.71
197. 117	FY	-0.43
198. 118	FY	-0.14
199. 119	FY	0.00
200. 120	FY	0.00
201. 128	FY	-2.56
202. 129	FY	-2.27

203.	130	FY	-1.99
204.	131	FY	-1.70
205.	132	FY	-1.42
206.	133	FY	-1.14
207.	134	FY	-0.85
208.	135	FY	-0.57
209.	136	FY	-0.28
210.	137	FY	0.00
211.	138	FY	0.00
212.	139	FY	0.00
213.	149	FY	-1.85
214.	150	FY	-1.56
215.	151	FY	-1.28
216.	152	FY	-0.99
217.	153	FY	-0.71
218.	154	FY	-0.43
219.	155	FY	-0.14
220.	156	FY	0.00
221.	157	FY	0.00
222.	170	FY	-1.14
223.	171	FY	-0.85
224.	172	FY	-0.57
225.	173	FY	-0.28
226.	174	FY	0.00
227.	175	FY	0.00
228.	176	FY	0.00
229.	191	FY	-0.43
230.	192	FY	-0.14
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/ 247.1 MB, EXMEM = 1964.5 MB

++ Processing Element Stiffness Matrix. 9:19:22
++ Processing Global Stiffness Matrix. 9:19:22
++ Processing Triangular Factorization. 9:19:22
++ Calculating Joint Displacements. 9:19:22
++ Calculating Member Forces. 9:19:22

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	376.86	.00	.00	.00	1246.28
		2	.00	-376.86	.00	.00	.00	-1089.89
2	1	2	.00	362.02	.00	.00	.00	1089.88
		3	.00	-362.02	.00	.00	.00	-939.64
3	1	3	.00	338.47	.00	.00	.00	939.64
		4	.00	-338.47	.00	.00	.00	-799.18
4	1	4	.00	310.26	.00	.00	.00	799.17
		5	.00	-310.26	.00	.00	.00	-670.42
5	1	5	.00	280.09	.00	.00	.00	670.42
		6	.00	-280.09	.00	.00	.00	-554.18
6	1	6	.00	249.51	.00	.00	.00	554.18
		7	.00	-249.51	.00	.00	.00	-450.63
7	1	7	.00	219.50	.00	.00	.00	450.63
		8	.00	-219.50	.00	.00	.00	-359.53
8	1	8	.00	190.70	.00	.00	.00	359.53
		9	.00	-190.70	.00	.00	.00	-280.39
9	1	9	.00	163.40	.00	.00	.00	280.39
		10	.00	-163.40	.00	.00	.00	-212.58
10	1	10	.00	137.74	.00	.00	.00	212.58
		11	.00	-137.74	.00	.00	.00	-155.42
11	1	11	.00	113.67	.00	.00	.00	155.42
		12	.00	-113.67	.00	.00	.00	-108.24
12	1	12	.00	91.14	.00	.00	.00	108.24
		13	.00	-91.14	.00	.00	.00	-70.42
13	1	13	.00	70.05	.00	.00	.00	70.42
		14	.00	-70.05	.00	.00	.00	-41.35
14	1	14	.00	50.46	.00	.00	.00	41.35
		15	.00	-50.46	.00	.00	.00	-20.41

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
15	1	15	.00	32.44	.00	.00	.00	20.41
		16	.00	-32.44	.00	.00	.00	-6.95
16	1	16	.00	16.28	.00	.00	.00	6.95
		17	.00	-16.28	.00	.00	.00	-.19
17	1	17	.00	2.80	.00	.00	.00	.19
		18	.00	-2.80	.00	.00	.00	.97
18	1	18	.00	-.06	.00	.00	.00	-.97
		19	.00	.06	.00	.00	.00	.95
19	1	19	.00	-.99	.00	.00	.00	-.95
		20	.00	.99	.00	.00	.00	.53
20	1	20	.00	-1.29	.00	.00	.00	-.53
		21	.00	1.29	.00	.00	.00	.00
21	1	22	.00	10.60	.00	.00	.00	7.39
		23	.00	-10.60	.00	.00	.00	-2.99
22	1	23	.00	2.73	.00	.00	.00	2.99
		24	.00	-2.73	.00	.00	.00	-1.86
23	1	24	.00	.95	.00	.00	.00	1.86
		25	.00	-.95	.00	.00	.00	-1.47
24	1	25	.00	.65	.00	.00	.00	1.47
		26	.00	-.65	.00	.00	.00	-1.20
25	1	26	.00	.54	.00	.00	.00	1.20
		27	.00	-.54	.00	.00	.00	-.97
26	1	27	.00	.45	.00	.00	.00	.97
		28	.00	-.45	.00	.00	.00	-.79
27	1	28	.00	.37	.00	.00	.00	.79
		29	.00	-.37	.00	.00	.00	-.63
28	1	29	.00	.34	.00	.00	.00	.63
		30	.00	-.34	.00	.00	.00	-.49
29	1	30	.00	.33	.00	.00	.00	.49
		31	.00	-.33	.00	.00	.00	-.36
30	1	31	.00	.30	.00	.00	.00	.36
		32	.00	-.30	.00	.00	.00	-.24
31	1	32	.00	.26	.00	.00	.00	.24
		33	.00	-.26	.00	.00	.00	-.13
32	1	33	.00	.23	.00	.00	.00	.13
		34	.00	-.23	.00	.00	.00	-.03
33	1	34	.00	.15	.00	.00	.00	.03
		35	.00	-.15	.00	.00	.00	.03
34	1	35	.00	.12	.00	.00	.00	-.03
		36	.00	-.12	.00	.00	.00	.08
35	1	36	.00	.12	.00	.00	.00	-.08
		37	.00	-.12	.00	.00	.00	.12
36	1	37	.00	.04	.00	.00	.00	-.12
		38	.00	-.04	.00	.00	.00	.14
37	1	38	.00	-.71	.00	.00	.00	-.14
		39	.00	.71	.00	.00	.00	-.15

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
38	1	39	.00	-.03	.00	.00	.00	.15
		40	.00	.03	.00	.00	.00	-.17
39	1	40	.00	.29	.00	.00	.00	.17
		41	.00	-.29	.00	.00	.00	-.05
40	1	41	.00	.12	.00	.00	.00	.05
		42	.00	-.12	.00	.00	.00	.00
41	1	43	.00	11.34	.00	.00	.00	8.94
		44	.00	-11.34	.00	.00	.00	-4.24
42	1	44	.00	5.61	.00	.00	.00	4.24
		45	.00	-5.61	.00	.00	.00	-1.91
43	1	45	.00	2.16	.00	.00	.00	1.91
		46	.00	-2.16	.00	.00	.00	-1.01
44	1	46	.00	.83	.00	.00	.00	1.01
		47	.00	-.83	.00	.00	.00	-.67
45	1	47	.00	.39	.00	.00	.00	.67
		48	.00	-.39	.00	.00	.00	-.51
46	1	48	.00	.22	.00	.00	.00	.50
		49	.00	-.22	.00	.00	.00	-.42
47	1	49	.00	.13	.00	.00	.00	.42
		50	.00	-.13	.00	.00	.00	-.36
48	1	50	.00	.13	.00	.00	.00	.36
		51	.00	-.13	.00	.00	.00	-.31
49	1	51	.00	.23	.00	.00	.00	.31
		52	.00	-.23	.00	.00	.00	-.21
50	1	52	.00	.29	.00	.00	.00	.21
		53	.00	-.29	.00	.00	.00	-.09
51	1	53	.00	.27	.00	.00	.00	.09
		54	.00	-.27	.00	.00	.00	.02
52	1	54	.00	.22	.00	.00	.00	-.02
		55	.00	-.22	.00	.00	.00	.11
53	1	55	.00	.15	.00	.00	.00	-.11
		56	.00	-.15	.00	.00	.00	.17
54	1	56	.00	.05	.00	.00	.00	-.17
		57	.00	-.05	.00	.00	.00	.19
55	1	57	.00	.08	.00	.00	.00	-.19
		58	.00	-.08	.00	.00	.00	.23
56	1	58	.00	-.30	.00	.00	.00	-.23
		59	.00	.30	.00	.00	.00	.10
57	1	59	.00	-.95	.00	.00	.00	-.10
		60	.00	.95	.00	.00	.00	-.29
58	1	60	.00	-.19	.00	.00	.00	.29
		61	.00	.19	.00	.00	.00	-.37
59	1	61	.00	-.27	.00	.00	.00	.37
		62	.00	.27	.00	.00	.00	-.48
60	1	62	.00	1.16	.00	.00	.00	.48
		63	.00	-1.16	.00	.00	.00	.00

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
61	1	64	.00	12.14	.00	.00	.00	10.36
		65	.00	-12.14	.00	.00	.00	-5.32
62	1	65	.00	7.27	.00	.00	.00	5.32
		66	.00	-7.27	.00	.00	.00	-2.30
63	1	66	.00	3.60	.00	.00	.00	2.30
		67	.00	-3.60	.00	.00	.00	-.81
64	1	67	.00	1.44	.00	.00	.00	.81
		68	.00	-1.44	.00	.00	.00	-.21
65	1	68	.00	.45	.00	.00	.00	.21
		69	.00	-.45	.00	.00	.00	-.03
66	1	69	.00	.07	.00	.00	.00	.03
		70	.00	-.07	.00	.00	.00	.01
67	1	70	.00	-.02	.00	.00	.00	-.01
		71	.00	.02	.00	.00	.00	.00
68	1	71	.00	-.05	.00	.00	.00	.00
		72	.00	.05	.00	.00	.00	-.02
69	1	72	.00	.11	.00	.00	.00	.02
		73	.00	-.11	.00	.00	.00	.03
70	1	73	.00	.37	.00	.00	.00	-.03
		74	.00	-.37	.00	.00	.00	.18
71	1	74	.00	.31	.00	.00	.00	-.18
		75	.00	-.31	.00	.00	.00	.31
72	1	75	.00	-.01	.00	.00	.00	-.31
		76	.00	.01	.00	.00	.00	.31
73	1	76	.00	.24	.00	.00	.00	-.31
		77	.00	-.24	.00	.00	.00	.41
74	1	77	.00	-.18	.00	.00	.00	-.40
		78	.00	.18	.00	.00	.00	.33
75	1	78	.00	-.13	.00	.00	.00	-.33
		79	.00	.13	.00	.00	.00	.27
76	1	79	.00	-.65	.00	.00	.00	-.27
		80	.00	.65	.00	.00	.00	.00
77	1	80	.00	-1.27	.00	.00	.00	.00
		81	.00	1.27	.00	.00	.00	-.52
78	1	81	.00	.28	.00	.00	.00	.52
		82	.00	-.28	.00	.00	.00	-.41
79	1	82	.00	.98	.00	.00	.00	.41
		83	.00	-.98	.00	.00	.00	.00
81	1	85	.00	12.06	.00	.00	.00	11.16
		86	.00	-12.06	.00	.00	.00	-6.15
82	1	86	.00	7.98	.00	.00	.00	6.15
		87	.00	-7.98	.00	.00	.00	-2.84
83	1	87	.00	4.63	.00	.00	.00	2.84
		88	.00	-4.63	.00	.00	.00	-.92
84	1	88	.00	2.15	.00	.00	.00	.92
		89	.00	-2.15	.00	.00	.00	-.03

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
85	1	89	.00	.73	.00	.00	.00	.03
		90	.00	-.73	.00	.00	.00	.28
86	1	90	.00	.10	.00	.00	.00	-.28
		91	.00	-.10	.00	.00	.00	.32
87	1	91	.00	.10	.00	.00	.00	-.32
		92	.00	-.10	.00	.00	.00	.36
88	1	92	.00	.11	.00	.00	.00	-.36
		93	.00	-.11	.00	.00	.00	.41
89	1	93	.00	-.10	.00	.00	.00	-.41
		94	.00	.10	.00	.00	.00	.37
90	1	94	.00	.54	.00	.00	.00	-.37
		95	.00	-.54	.00	.00	.00	.59
91	1	95	.00	.38	.00	.00	.00	-.59
		96	.00	-.38	.00	.00	.00	.75
92	1	96	.00	-.44	.00	.00	.00	-.75
		97	.00	.44	.00	.00	.00	.57
93	1	97	.00	.10	.00	.00	.00	-.57
		98	.00	-.10	.00	.00	.00	.61
94	1	98	.00	.02	.00	.00	.00	-.61
		99	.00	-.02	.00	.00	.00	.62
95	1	99	.00	-1.16	.00	.00	.00	-.62
		100	.00	1.16	.00	.00	.00	.14
96	1	100	.00	-.48	.00	.00	.00	-.14
		101	.00	.48	.00	.00	.00	-.06
97	1	101	.00	.14	.00	.00	.00	.06
		102	.00	-.14	.00	.00	.00	.00
101	1	106	.00	11.17	.00	.00	.00	11.30
		107	.00	-11.17	.00	.00	.00	-6.67
102	1	107	.00	7.81	.00	.00	.00	6.67
		108	.00	-7.81	.00	.00	.00	-3.42
103	1	108	.00	5.08	.00	.00	.00	3.43
		109	.00	-5.08	.00	.00	.00	-1.32
104	1	109	.00	2.74	.00	.00	.00	1.32
		110	.00	-2.74	.00	.00	.00	-.18
105	1	110	.00	1.11	.00	.00	.00	.18
		111	.00	-1.11	.00	.00	.00	.28
106	1	111	.00	.39	.00	.00	.00	-.28
		112	.00	-.39	.00	.00	.00	.44
107	1	112	.00	.42	.00	.00	.00	-.44
		113	.00	-.42	.00	.00	.00	.61
108	1	113	.00	.95	.00	.00	.00	-.61
		114	.00	-.95	.00	.00	.00	1.01
109	1	114	.00	-.08	.00	.00	.00	-1.01
		115	.00	.08	.00	.00	.00	.98
110	1	115	.00	.41	.00	.00	.00	-.98
		116	.00	-.41	.00	.00	.00	1.15

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
111	1	116	.00	-.31	.00	.00	.00	-1.15
		117	.00	.31	.00	.00	.00	1.02
112	1	117	.00	.74	.00	.00	.00	-1.02
		118	.00	-.74	.00	.00	.00	1.33
113	1	118	.00	-2.00	.00	.00	.00	-1.33
		119	.00	2.00	.00	.00	.00	.50
114	1	119	.00	-1.22	.00	.00	.00	-.50
		120	.00	1.22	.00	.00	.00	.00
121	1	127	.00	9.78	.00	.00	.00	10.89
		128	.00	-9.78	.00	.00	.00	-6.83
122	1	128	.00	6.95	.00	.00	.00	6.83
		129	.00	-6.95	.00	.00	.00	-3.95
123	1	129	.00	4.67	.00	.00	.00	3.95
		130	.00	-4.67	.00	.00	.00	-2.01
124	1	130	.00	3.28	.00	.00	.00	2.02
		131	.00	-3.28	.00	.00	.00	-.66
125	1	131	.00	1.29	.00	.00	.00	.66
		132	.00	-1.29	.00	.00	.00	-.12
126	1	132	.00	1.29	.00	.00	.00	.12
		133	.00	-1.29	.00	.00	.00	.41
127	1	133	.00	.87	.00	.00	.00	-.41
		134	.00	-.87	.00	.00	.00	.78
128	1	134	.00	1.38	.00	.00	.00	-.78
		135	.00	-1.38	.00	.00	.00	1.35
129	1	135	.00	3.00	.00	.00	.00	-1.35
		136	.00	-3.00	.00	.00	.00	2.60
130	1	136	.00	-2.27	.00	.00	.00	-2.60
		137	.00	2.27	.00	.00	.00	1.66
131	1	137	.00	-1.91	.00	.00	.00	-1.66
		138	.00	1.91	.00	.00	.00	.87
132	1	138	.00	-2.09	.00	.00	.00	-.87
		139	.00	2.09	.00	.00	.00	.00
141	1	148	.00	7.65	.00	.00	.00	9.95
		149	.00	-7.65	.00	.00	.00	-6.77
142	1	149	.00	6.05	.00	.00	.00	6.77
		150	.00	-6.05	.00	.00	.00	-4.26
143	1	150	.00	2.85	.00	.00	.00	4.26
		151	.00	-2.85	.00	.00	.00	-3.08
144	1	151	.00	3.66	.00	.00	.00	3.08
		152	.00	-3.66	.00	.00	.00	-1.56
145	1	152	.00	1.63	.00	.00	.00	1.56
		153	.00	-1.63	.00	.00	.00	-.88
146	1	153	.00	2.76	.00	.00	.00	.88
		154	.00	-2.76	.00	.00	.00	.27
147	1	154	.00	2.70	.00	.00	.00	-.27
		155	.00	-2.70	.00	.00	.00	1.39

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
148	1	155	.00	-.56	.00	.00	.00	-1.39
		156	.00	.56	.00	.00	.00	1.16
149	1	156	.00	-2.77	.00	.00	.00	-1.15
		157	.00	2.77	.00	.00	.00	.00
161	1	169	.00	4.02	.00	.00	.00	8.34
		170	.00	-4.02	.00	.00	.00	-6.67
162	1	170	.00	5.22	.00	.00	.00	6.67
		171	.00	-5.22	.00	.00	.00	-4.51
163	1	171	.00	1.65	.00	.00	.00	4.51
		172	.00	-1.65	.00	.00	.00	-3.82
164	1	172	.00	-.52	.00	.00	.00	3.82
		173	.00	.52	.00	.00	.00	-4.04
165	1	173	.00	7.09	.00	.00	.00	4.04
		174	.00	-7.09	.00	.00	.00	-1.10
166	1	174	.00	2.71	.00	.00	.00	1.10
		175	.00	-2.71	.00	.00	.00	.02
167	1	175	.00	-.03	.00	.00	.00	-.02
		176	.00	.03	.00	.00	.00	.00
181	1	190	.00	1.86	.00	.00	.00	6.46
		191	.00	-1.86	.00	.00	.00	-5.69
182	1	191	.00	-2.38	.00	.00	.00	5.69
		192	.00	2.38	.00	.00	.00	-6.67
183	1	192	.00	8.82	.00	.00	.00	6.68
		193	.00	-8.82	.00	.00	.00	-3.02
184	1	193	.00	7.27	.00	.00	.00	3.02
		194	.00	-7.27	.00	.00	.00	.00
191	1	211	.00	6.10	.00	.00	.00	5.65
		212	.00	-6.10	.00	.00	.00	-3.12
192	1	212	.00	7.49	.00	.00	.00	3.12
		213	.00	-7.49	.00	.00	.00	-.01
201	1	2	.00	2.06	.00	.00	.00	1.28
		23	.00	-2.06	.00	.00	.00	-.53
202	1	23	.00	1.86	.00	.00	.00	.53
		44	.00	-1.86	.00	.00	.00	.14
203	1	44	.00	.77	.00	.00	.00	-.14
		65	.00	-.77	.00	.00	.00	.42
204	1	65	.00	.06	.00	.00	.00	-.42
		86	.00	-.06	.00	.00	.00	.45
205	1	86	.00	-.19	.00	.00	.00	-.45
		107	.00	.19	.00	.00	.00	.38
206	1	107	.00	-.10	.00	.00	.00	-.38
		128	.00	.10	.00	.00	.00	.34
207	1	128	.00	.17	.00	.00	.00	-.34
		149	.00	-.17	.00	.00	.00	.41
208	1	149	.00	-.08	.00	.00	.00	-.41
		170	.00	.08	.00	.00	.00	.38

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
209	1	170	.00	-2.42	.00	.00	.00	-.38
		191	.00	2.42	.00	.00	.00	-.50
210	1	191	.00	1.40	.00	.00	.00	.50
		212	.00	-1.40	.00	.00	.00	.00
211	1	3	.00	11.15	.00	.00	.00	5.44
		24	.00	-11.15	.00	.00	.00	-1.39
212	1	24	.00	5.15	.00	.00	.00	1.39
		45	.00	-5.15	.00	.00	.00	.47
213	1	45	.00	2.06	.00	.00	.00	-.48
		66	.00	-2.06	.00	.00	.00	1.22
214	1	66	.00	.43	.00	.00	.00	-1.22
		87	.00	-.43	.00	.00	.00	1.38
215	1	87	.00	-.28	.00	.00	.00	-1.38
		108	.00	.28	.00	.00	.00	1.28
216	1	108	.00	-.53	.00	.00	.00	-1.28
		129	.00	.53	.00	.00	.00	1.09
217	1	129	.00	-.52	.00	.00	.00	-1.09
		150	.00	.52	.00	.00	.00	.90
218	1	150	.00	1.12	.00	.00	.00	-.90
		171	.00	-1.12	.00	.00	.00	1.31
219	1	171	.00	3.84	.00	.00	.00	-1.31
		192	.00	-3.84	.00	.00	.00	2.70
220	1	192	.00	-7.49	.00	-.01	.00	-2.71
		213	.00	7.49	.00	.01	.00	.00
221	1	4	.00	16.18	.00	.00	.00	8.76
		25	.00	-16.18	.00	.00	.00	-2.88
222	1	25	.00	8.98	.00	.00	.00	2.88
		46	.00	-8.98	.00	.00	.00	.38
223	1	46	.00	4.05	.00	.00	.00	-.38
		67	.00	-4.05	.00	.00	.00	1.85
224	1	67	.00	1.19	.00	.00	.00	-1.85
		88	.00	-1.19	.00	.00	.00	2.28
225	1	88	.00	-.10	.00	.00	.00	-2.28
		109	.00	.10	.00	.00	.00	2.24
226	1	109	.00	-.45	.00	.00	.00	-2.24
		130	.00	.45	.00	.00	.00	2.08
227	1	130	.00	-1.05	.00	.00	.00	-2.08
		151	.00	1.05	.00	.00	.00	1.70
228	1	151	.00	-3.14	.00	.00	.00	-1.70
		172	.00	3.14	.00	.00	.00	.56
229	1	172	.00	-1.54	.00	.00	.00	-.56
		193	.00	1.54	.00	.00	.00	.00
231	1	5	.00	18.51	.00	.00	.00	10.98
		26	.00	-18.51	.00	.00	.00	-4.26
232	1	26	.00	11.41	.00	.00	.00	4.26
		47	.00	-11.41	.00	.00	.00	-.11

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
233	1	47	.00	5.88	.00	.00	.00	.12
		68	.00	-5.88	.00	.00	.00	2.01
234	1	68	.00	2.14	.00	.00	.00	-2.01
		89	.00	-2.14	.00	.00	.00	2.79
235	1	89	.00	.07	.00	.00	.00	-2.79
		110	.00	-.07	.00	.00	.00	2.82
236	1	110	.00	-.71	.00	.00	.00	-2.82
		131	.00	.71	.00	.00	.00	2.56
237	1	131	.00	-.42	.00	.00	.00	-2.56
		152	.00	.42	.00	.00	.00	2.41
238	1	152	.00	.61	.00	.00	.00	-2.41
		173	.00	-.61	.00	.00	.00	2.63
239	1	173	.00	-7.27	.00	.00	.00	-2.64
		194	.00	7.27	.00	.00	.00	.00
241	1	6	.00	19.31	.00	.00	.00	12.29
		27	.00	-19.31	.00	.00	.00	-5.28
242	1	27	.00	12.47	.00	.00	.00	5.28
		48	.00	-12.47	.00	.00	.00	-.75
243	1	48	.00	6.95	.00	.00	.00	.75
		69	.00	-6.95	.00	.00	.00	1.76
244	1	69	.00	2.88	.00	.00	.00	-1.76
		90	.00	-2.88	.00	.00	.00	2.80
245	1	90	.00	.29	.00	.00	.00	-2.80
		111	.00	-.29	.00	.00	.00	2.91
246	1	111	.00	-1.12	.00	.00	.00	-2.91
		132	.00	1.12	.00	.00	.00	2.51
247	1	132	.00	-2.54	.00	.00	.00	-2.51
		153	.00	2.54	.00	.00	.00	1.58
248	1	153	.00	-4.38	.00	.00	.00	-1.59
		174	.00	4.38	.00	.00	.00	.00
251	1	7	.00	19.11	.00	.00	.00	12.87
		28	.00	-19.11	.00	.00	.00	-5.93
252	1	28	.00	12.53	.00	.00	.00	5.93
		49	.00	-12.53	.00	.00	.00	-1.38
253	1	49	.00	7.22	.00	.00	.00	1.38
		70	.00	-7.22	.00	.00	.00	1.23
254	1	70	.00	3.15	.00	.00	.00	-1.23
		91	.00	-3.15	.00	.00	.00	2.37
255	1	91	.00	.23	.00	.00	.00	-2.37
		112	.00	-.23	.00	.00	.00	2.45
256	1	112	.00	-1.65	.00	.00	.00	-2.45
		133	.00	1.65	.00	.00	.00	1.86
257	1	133	.00	-2.38	.00	.00	.00	-1.86
		154	.00	2.38	.00	.00	.00	.99
258	1	154	.00	-2.75	.00	.00	.00	-.99
		175	.00	2.75	.00	.00	.00	.00

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
261	1	8	.00	18.29	.00	.00	.00	12.92
		29	.00	-18.29	.00	.00	.00	-6.28
262	1	29	.00	11.96	.00	.00	.00	6.28
		50	.00	-11.96	.00	.00	.00	-1.94
263	1	50	.00	6.84	.00	.00	.00	1.94
		71	.00	-6.84	.00	.00	.00	.54
264	1	71	.00	2.99	.00	.00	.00	-.54
		92	.00	-2.99	.00	.00	.00	1.62
265	1	92	.00	.35	.00	.00	.00	-1.62
		113	.00	-.35	.00	.00	.00	1.74
266	1	113	.00	-1.74	.00	.00	.00	-1.74
		134	.00	1.74	.00	.00	.00	1.11
267	1	134	.00	-3.09	.00	.00	.00	-1.11
		155	.00	3.09	.00	.00	.00	-.01
268	1	155	.00	.03	.00	.00	.00	.01
		176	.00	-.03	.00	.00	.00	.00
271	1	9	.00	17.16	.00	.00	.00	12.62
		30	.00	-17.16	.00	.00	.00	-6.39
272	1	30	.00	11.09	.00	.00	.00	6.39
		51	.00	-11.09	.00	.00	.00	-2.37
273	1	51	.00	6.14	.00	.00	.00	2.37
		72	.00	-6.14	.00	.00	.00	-.14
274	1	72	.00	2.38	.00	.00	.00	.14
		93	.00	-2.38	.00	.00	.00	.72
275	1	93	.00	.24	.00	.00	.00	-.72
		114	.00	-.24	.00	.00	.00	.81
276	1	114	.00	-.01	.00	.00	.00	-.80
		135	.00	.01	.00	.00	.00	.80
277	1	135	.00	-2.21	.00	.00	.00	-.80
		156	.00	2.21	.00	.00	.00	.00
281	1	10	.00	15.91	.00	.00	.00	12.10
		31	.00	-15.91	.00	.00	.00	-6.32
282	1	31	.00	10.15	.00	.00	.00	6.32
		52	.00	-10.15	.00	.00	.00	-2.64
283	1	52	.00	5.54	.00	.00	.00	2.64
		73	.00	-5.54	.00	.00	.00	-.64
284	1	73	.00	1.97	.00	.00	.00	.64
		94	.00	-1.97	.00	.00	.00	.07
285	1	94	.00	-.74	.00	.00	.00	-.07
		115	.00	.74	.00	.00	.00	-.19
286	1	115	.00	-2.22	.00	.00	.00	.20
		136	.00	2.22	.00	.00	.00	-1.00
287	1	136	.00	2.77	.00	.00	.00	1.00
		157	.00	-2.77	.00	.00	.00	.00
291	1	11	.00	14.67	.00	.00	.00	11.43
		32	.00	-14.67	.00	.00	.00	-6.11

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
292	1	32	.00	9.19	.00	.00	.00	6.11
		53	.00	-9.19	.00	.00	.00	-2.77
293	1	53	.00	4.95	.00	.00	.00	2.77
		74	.00	-4.95	.00	.00	.00	-.98
294	1	74	.00	1.99	.00	.00	.00	.98
		95	.00	-1.99	.00	.00	.00	-.26
295	1	95	.00	.36	.00	.00	.00	.26
		116	.00	-.36	.00	.00	.00	-.13
296	1	116	.00	.36	.00	.00	.00	.13
		137	.00	-.36	.00	.00	.00	.00
301	1	12	.00	13.53	.00	.00	.00	10.64
		33	.00	-13.53	.00	.00	.00	-5.73
302	1	33	.00	8.33	.00	.00	.00	5.73
		54	.00	-8.33	.00	.00	.00	-2.71
303	1	54	.00	4.40	.00	.00	.00	2.71
		75	.00	-4.40	.00	.00	.00	-1.12
304	1	75	.00	1.98	.00	.00	.00	1.12
		96	.00	-1.98	.00	.00	.00	-.40
305	1	96	.00	1.29	.00	.00	.00	.40
		117	.00	-1.29	.00	.00	.00	.07
306	1	117	.00	-.18	.00	.00	.00	-.07
		138	.00	.18	.00	.00	.00	.00
311	1	13	.00	12.45	.00	.00	.00	9.73
		34	.00	-12.45	.00	.00	.00	-5.21
312	1	34	.00	7.59	.00	.00	.00	5.21
		55	.00	-7.59	.00	.00	.00	-2.45
313	1	55	.00	3.95	.00	.00	.00	2.45
		76	.00	-3.95	.00	.00	.00	-1.02
314	1	76	.00	1.25	.00	.00	.00	1.02
		97	.00	-1.25	.00	.00	.00	-.57
315	1	97	.00	-.51	.00	.00	.00	.57
		118	.00	.51	.00	.00	.00	-.76
316	1	118	.00	2.09	.00	.00	.00	.76
		139	.00	-2.09	.00	.00	.00	.00
321	1	14	.00	11.34	.00	.00	.00	8.65
		35	.00	-11.34	.00	.00	.00	-4.54
322	1	35	.00	6.71	.00	.00	.00	4.54
		56	.00	-6.71	.00	.00	.00	-2.10
323	1	56	.00	3.39	.00	.00	.00	2.10
		77	.00	-3.39	.00	.00	.00	-.87
324	1	77	.00	1.63	.00	.00	.00	.87
		98	.00	-1.63	.00	.00	.00	-.28
325	1	98	.00	.78	.00	.00	.00	.28
		119	.00	-.78	.00	.00	.00	.00
331	1	15	.00	10.14	.00	.00	.00	7.42
		36	.00	-10.14	.00	.00	.00	-3.73

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
332	1	36	.00	5.78	.00	.00	.00	3.73
		57	.00	-5.78	.00	.00	.00	-1.64
333	1	57	.00	2.62	.00	.00	.00	1.64
		78	.00	-2.62	.00	.00	.00	-.69
334	1	78	.00	.68	.00	.00	.00	.69
		99	.00	-.68	.00	.00	.00	-.44
335	1	99	.00	1.22	.00	.00	.00	.44
		120	.00	-1.22	.00	.00	.00	.00
341	1	16	.00	8.65	.00	.00	.00	5.98
		37	.00	-8.65	.00	.00	.00	-2.84
342	1	37	.00	4.63	.00	.00	.00	2.84
		58	.00	-4.63	.00	.00	.00	-1.16
343	1	58	.00	2.15	.00	.00	.00	1.16
		79	.00	-2.15	.00	.00	.00	-.38
344	1	79	.00	1.06	.00	.00	.00	.38
		100	.00	-1.06	.00	.00	.00	.00
351	1	17	.00	6.36	.00	.00	.00	4.26
		38	.00	-6.36	.00	.00	.00	-1.95
352	1	38	.00	3.30	.00	.00	.00	1.95
		59	.00	-3.30	.00	.00	.00	-.76
353	1	59	.00	1.39	.00	.00	.00	.76
		80	.00	-1.39	.00	.00	.00	-.25
354	1	80	.00	.70	.00	.00	.00	.25
		101	.00	-.70	.00	.00	.00	.00
361	1	18	.00	2.86	.00	.00	.00	2.29
		39	.00	-2.86	.00	.00	.00	-1.25
362	1	39	.00	2.17	.00	.00	.00	1.25
		60	.00	-2.17	.00	.00	.00	-.46
363	1	60	.00	1.41	.00	.00	.00	.46
		81	.00	-1.41	.00	.00	.00	.05
364	1	81	.00	-.14	.00	.00	.00	-.05
		102	.00	.14	.00	.00	.00	.00
371	1	19	.00	.94	.00	.00	.00	.82
		40	.00	-.94	.00	.00	.00	-.48
372	1	40	.00	.63	.00	.00	.00	.48
		61	.00	-.63	.00	.00	.00	-.25
381	1	20	.00	.28	.00	.00	.00	-.09
		41	.00	-.28	.00	.00	.00	.19
382	1	41	.00	.45	.00	.00	.00	-.19
		62	.00	-.45	.00	.00	.00	.35
391	1	21	.00	-1.28	.00	.00	.00	-.88
		42	.00	1.28	.00	.00	.00	.42
392	1	42	.00	-1.16	.00	.00	.00	-.42
		63	.00	1.16	.00	.00	.00	.00

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

```
238. PLOT BEN FILE

239. PLOT DISP FILE
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

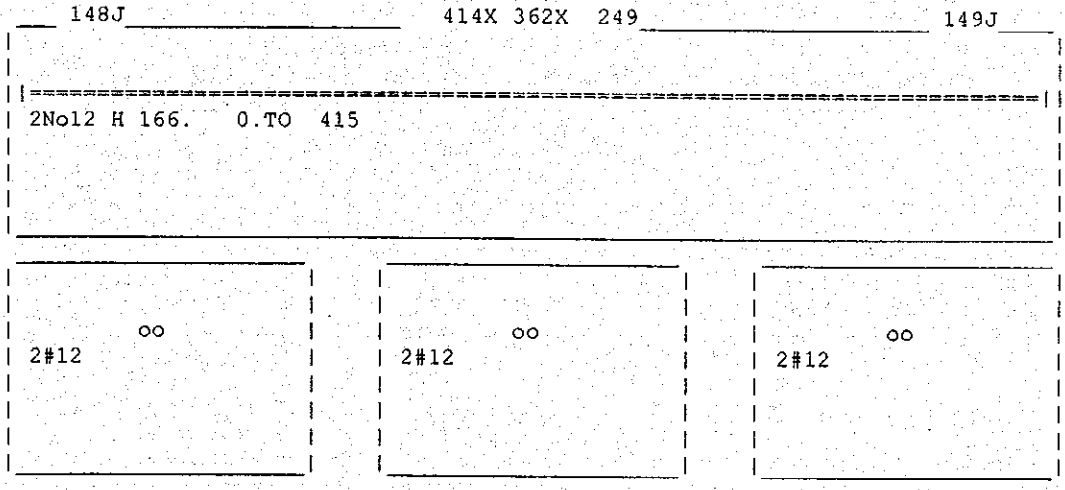
LEN -   415. MM  FY -  414.  FC -  25.  MPA, SIZE -  363. X  250. MMS

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

  1        166.     2 - 12MM          0.          415.         YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      9.95 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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=    7.65 KNS  Vc=   48.11 KNS  Vs=     .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=    7.65 KNS  Vc=   48.11 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 -   415. MM  FY -  414.  FC -  25.  MPA, SIZE -  363. X  250. MMS

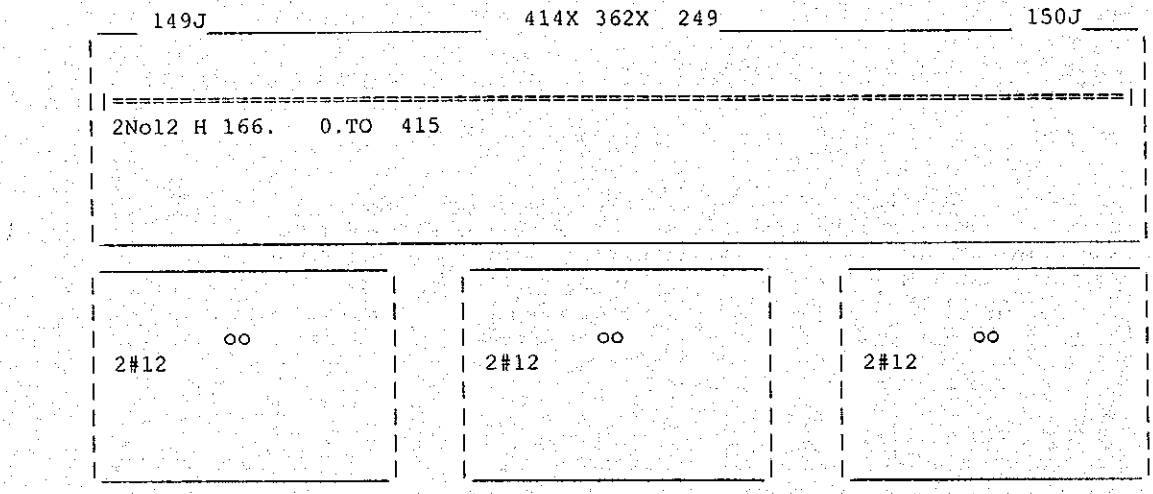
LEVEL    HEIGHT      BAR INFO        FROM          TO          ANCHOR
           (MM)                       (MM)         (MM)        STA  END
-------------------------------------------------------------------------

  1        166.     2 - 12MM          0.          415.         YES  YES
```

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      6.77 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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= 6.05 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 6.05 KNS Vc= 48.11 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

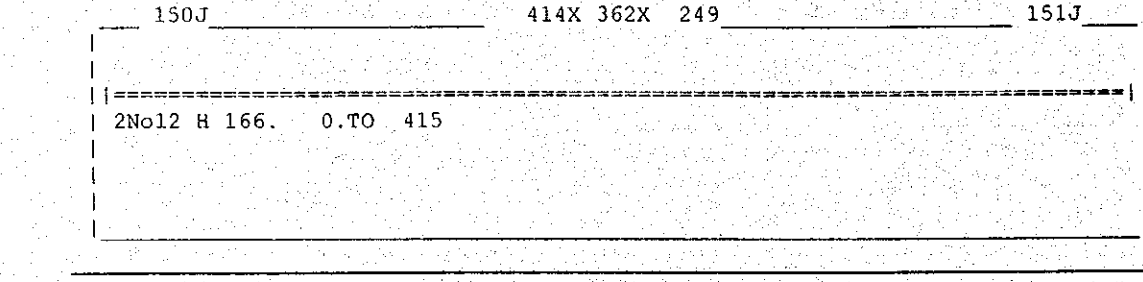
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

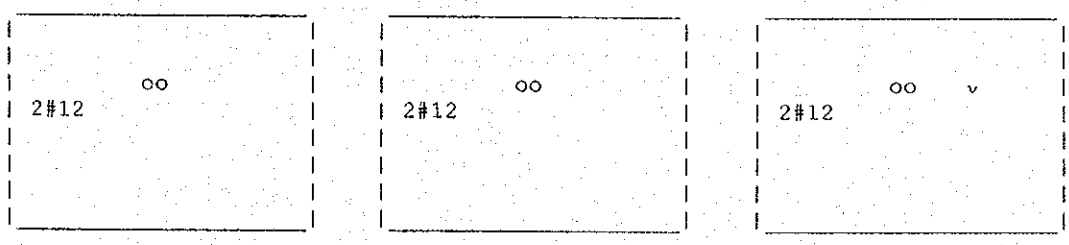
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      4.26 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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= 2.85 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 2.85 KNS Vc= 48.11 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

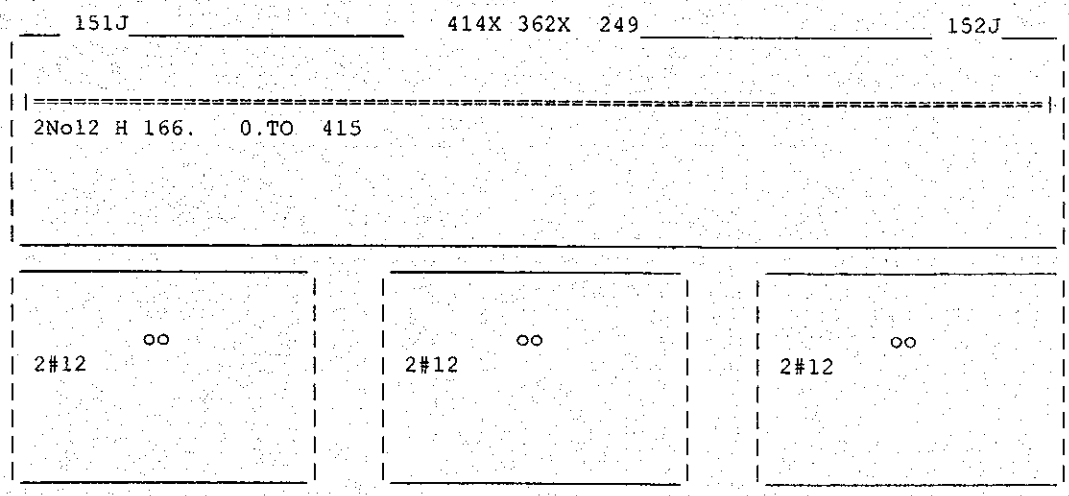
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

CRITICAL NEG MOMENT= 3.08 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 249./ 37./ 249. 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= 3.66 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 3.66 KNS Vc= 48.11 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

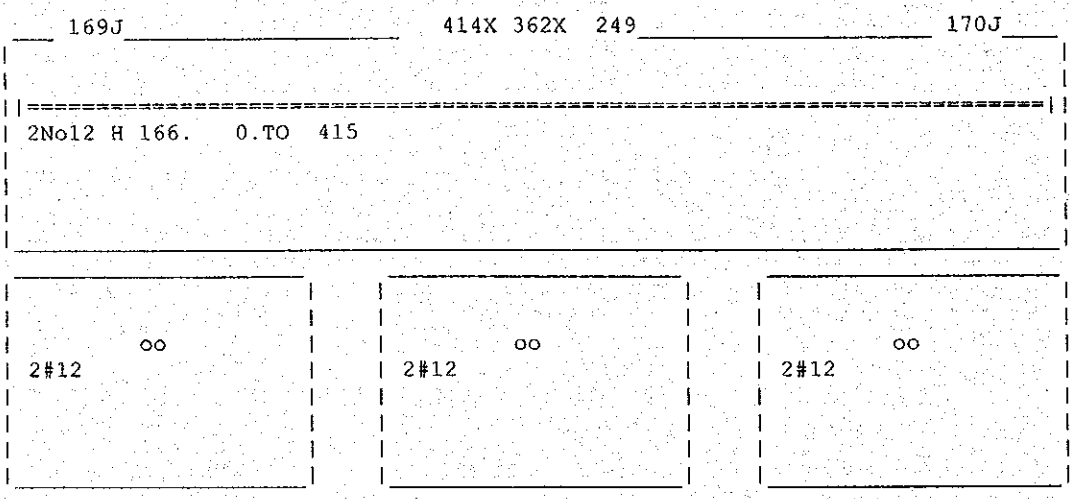
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      8.34 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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= 4.02 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 4.02 KNS Vc= 48.11 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

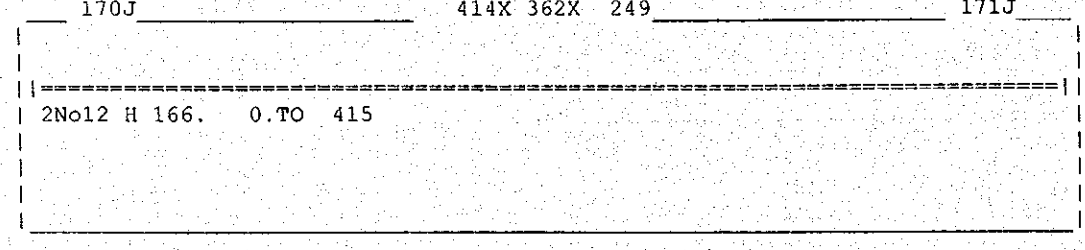
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

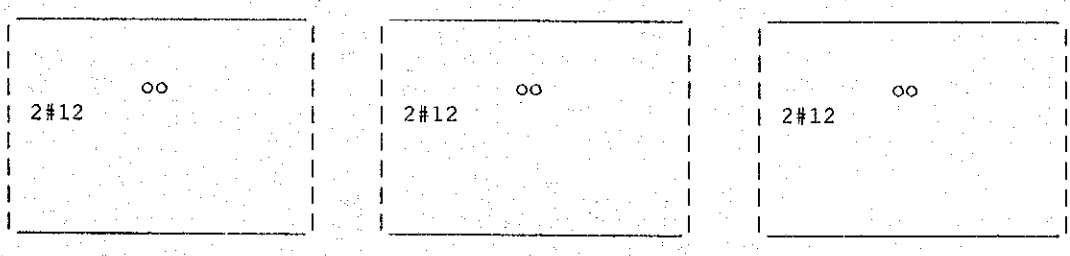
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      6.67 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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= 5.22 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 5.22 KNS Vc= 48.11 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

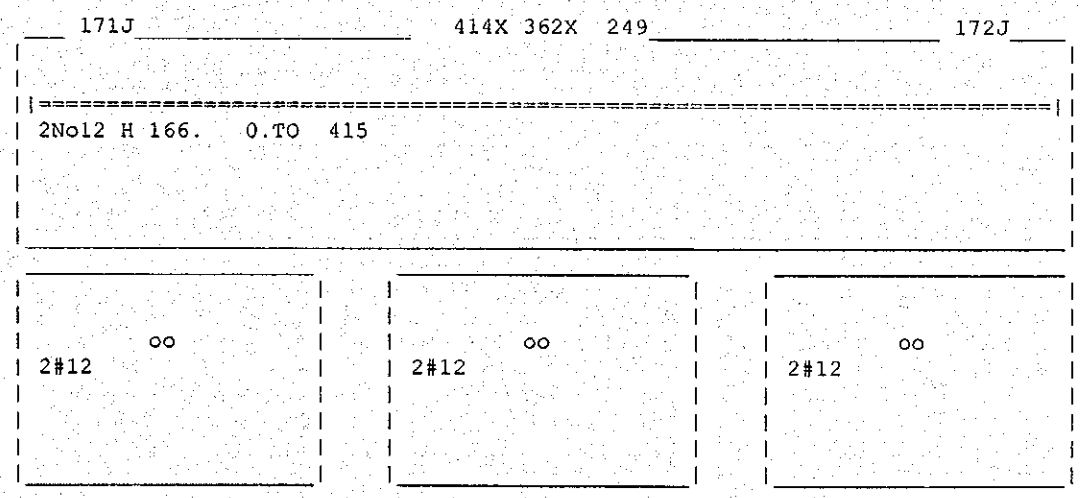
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

CRITICAL NEG MOMENT= 4.51 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 249./ 37./ 249. 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= 1.65 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 1.65 KNS Vc= 48.11 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

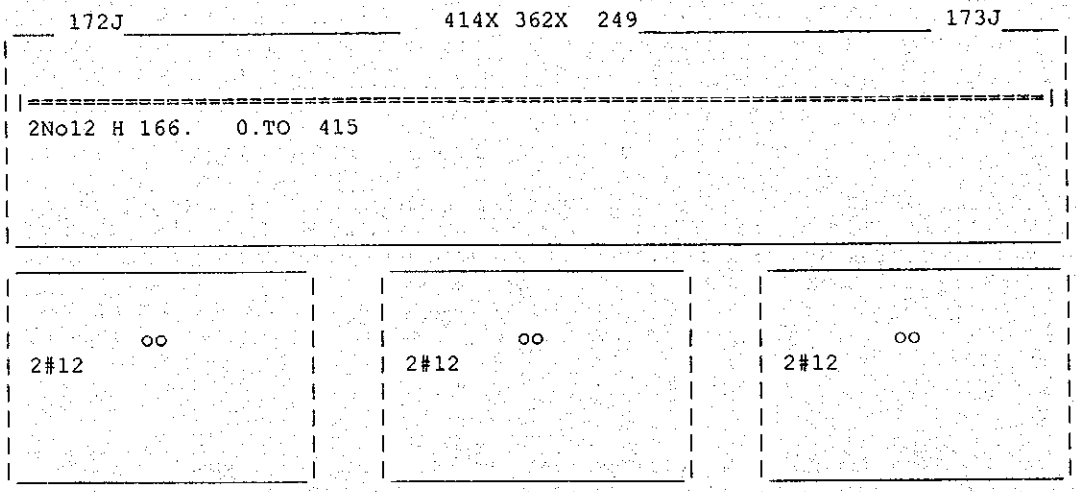
LEN - 415. MM FY - 414. FC - 25. MPA, SIZE - 363. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	2 - 12MM	0.	415.	YES	YES

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      4.04 KN-MET  AT   415.MM, LOAD   1 |
|   REQD STEEL=   201.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   249./   37./  249. 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= .52 KNS Vc= 48.11 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= .52 KNS Vc= 48.11 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

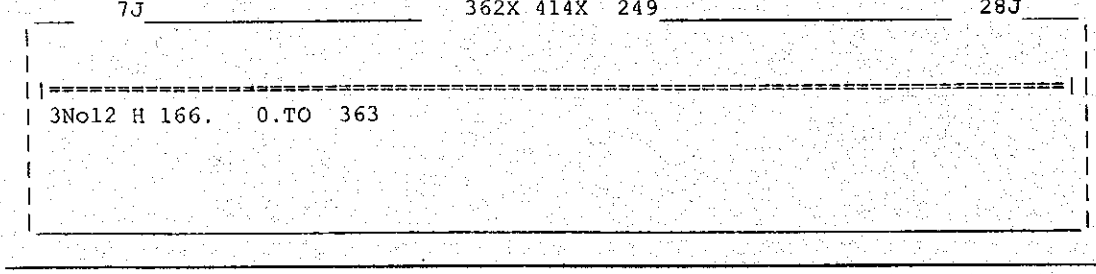
LEN - 363. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	3 - 12MM	0.	363.	YES	YES

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     12.87 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   301./   37./  151. 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= 19.11 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 19.11 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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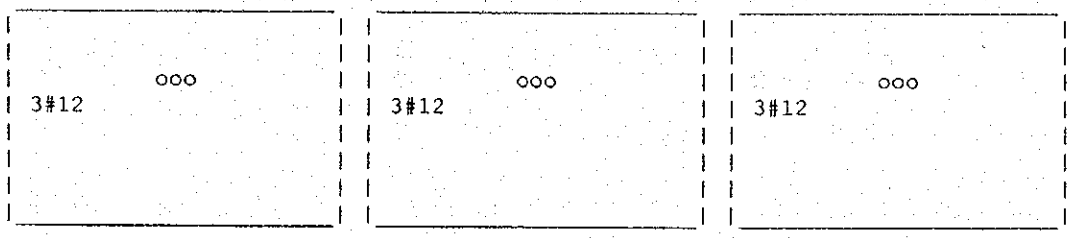


B E A M N O. 252 D E S I G N R E S U L T S - FLEXURE

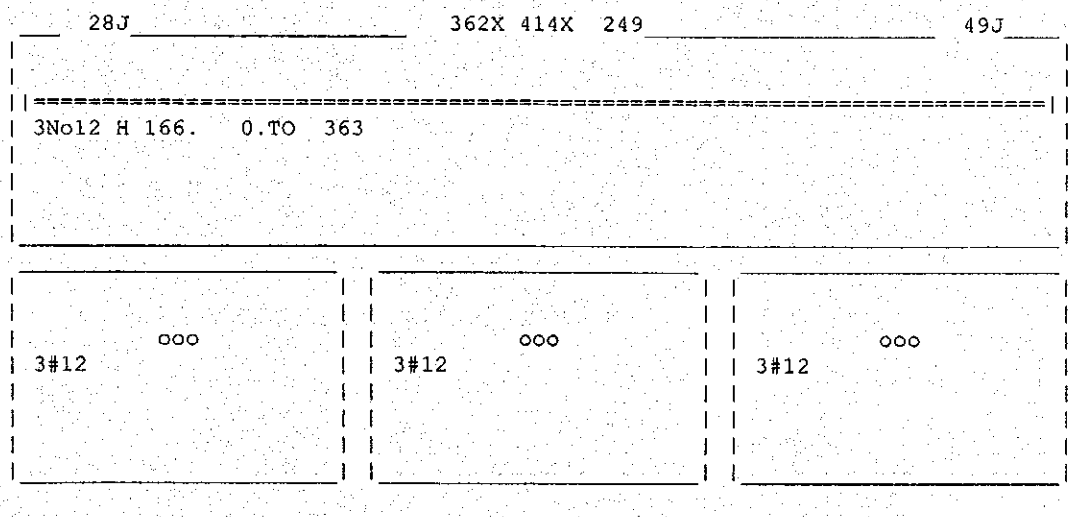
LEN - 363. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	3 - 12MM	0.	363.	YES	YES

CRITICAL NEG MOMENT= 5.93 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 301./ 37./ 151. 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= 12.53 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 12.53 KNS Vc= 55.00 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 - 362. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

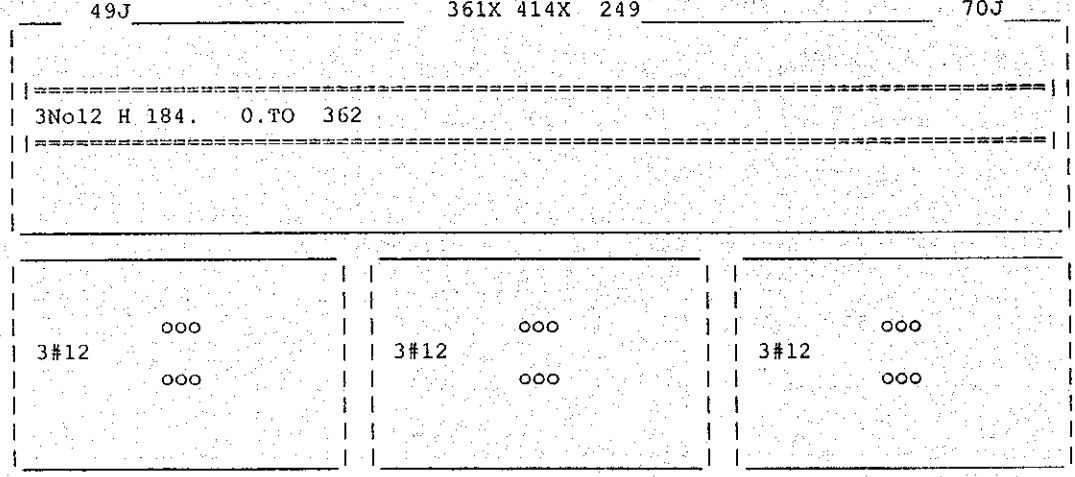
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	3 - 12MM	0.	362.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      1.23 KN-MET  AT    362.MM, LOAD   1 |
|   REQD STEEL=   230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   301./   37./  151. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   243. MMS           |
|-------------------------------------------------------------------|

  2        166.     3 - 12MM          0.          362.        YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      1.38 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   301./   37./  151. 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=    7.22 KNS  Vc=   55.00 KNS  Vs=     .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=    7.22 KNS  Vc=   55.00 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

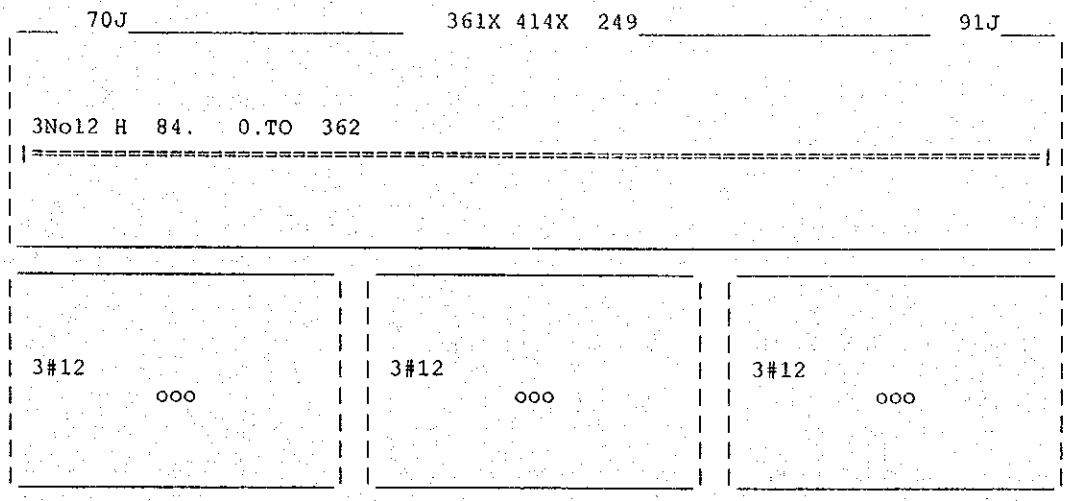
```
LEN -   362. MM  FY -  414.  FC -  25.  MPA, SIZE -  415. X  250. MMS

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

  1         84.     3 - 12MM          0.          362.        YES  YES
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      2.37 KN-MET  AT    362.MM, LOAD   1 |
|   REQD STEEL=   230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   301./   37./  151. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   243. 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=    3.15 KNS  Vc=   55.00 KNS  Vs=     .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=    3.15 KNS  Vc=   55.00 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

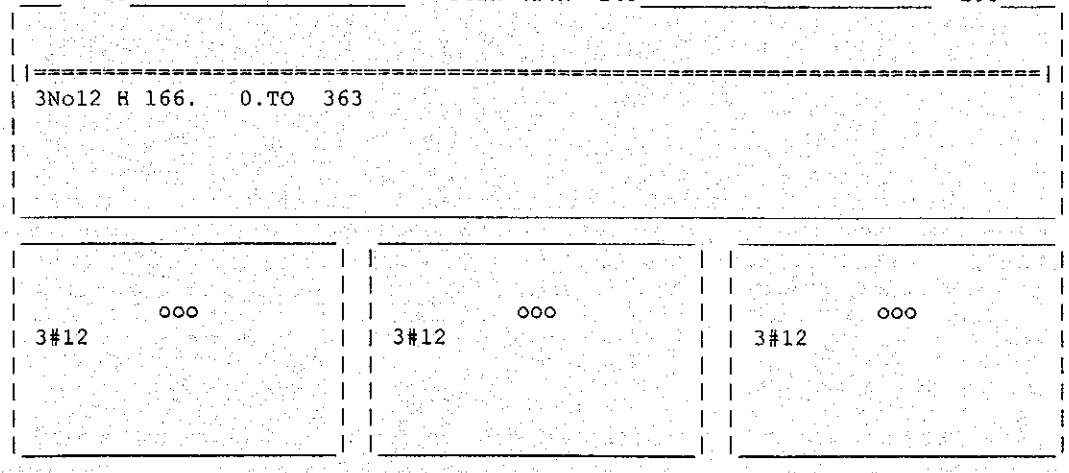
LEN = 363. MM FY = 414. FC = 25. MPA, SIZE = 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	3 - 12MM	0.	363.	YES	YES

CRITICAL NEG MOMENT= 12.92 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 301./ 37./ 151. 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= 18.29 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 18.29 KNS Vc= 55.00 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

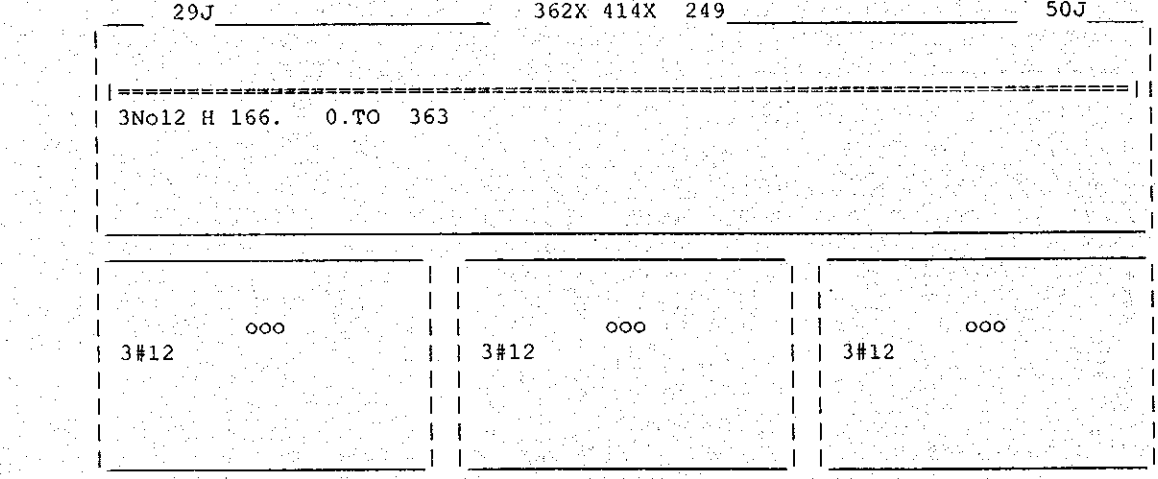
LEN - 363. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	166.	3 - 12MM	0.	363.	YES	YES

CRITICAL NEG MOMENT=	6.28 KN-MET AT 0.MM, LOAD 1
REQD STEEL=	230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING=	301./ 37./ 151. 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= 11.96 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 11.96 KNS Vc= 55.00 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 - 362. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	3 - 12MM	43.	362.	NO	YES

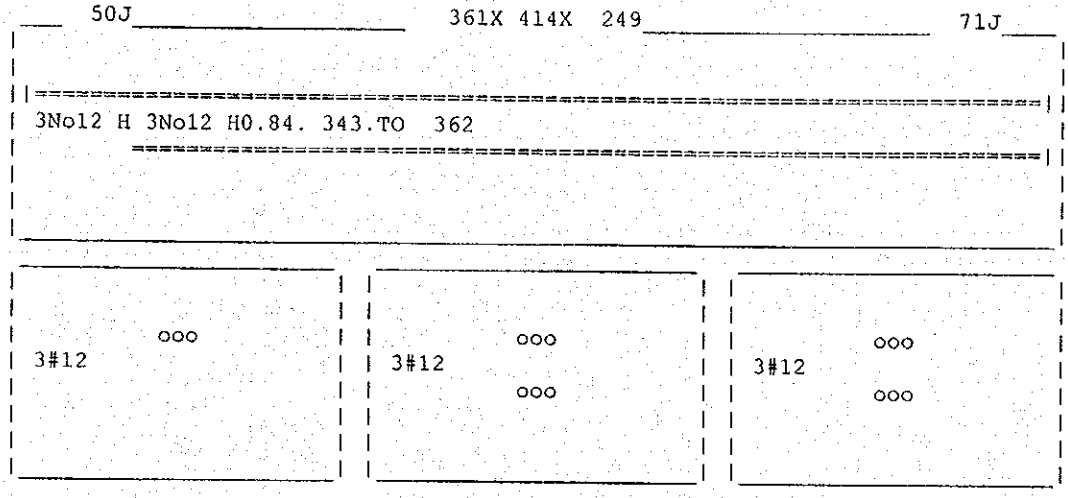
CRITICAL POS MOMENT=	.54 KN-MET AT 362.MM, LOAD 1
REQD STEEL=	230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING=	301./ 37./ 151. MMS
BASIC/REQD. DEVELOPMENT LENGTH =	177./ 243. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
2	166.	3 - 12MM	0.	362.	YES	YES

CRITICAL NEG MOMENT=	1.94 KN-MET AT 0.MM, LOAD 1
REQD STEEL=	230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING=	301./ 37./ 151. MMS
BASIC/REQD. DEVELOPMENT LENGTH =	177./ 359. MMS

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= 6.84 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 6.84 KNS Vc= 55.00 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

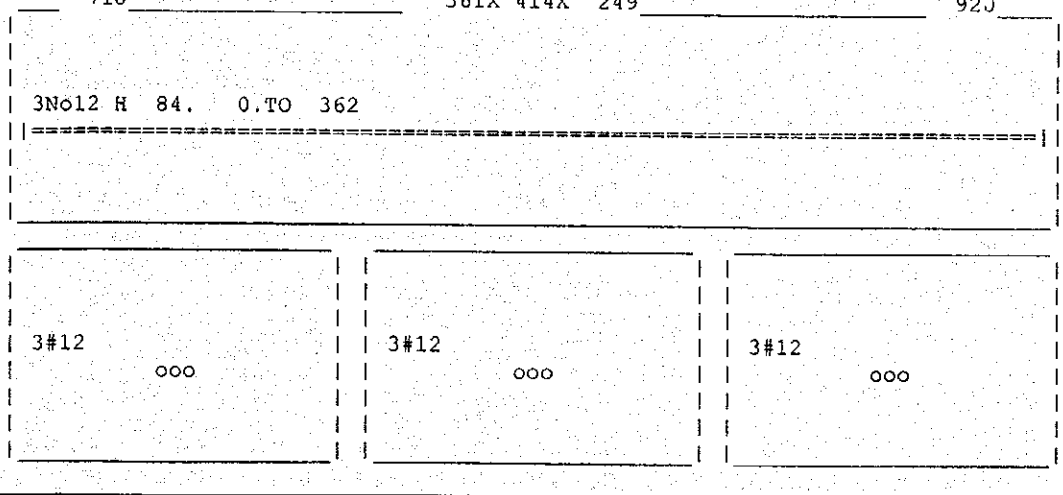
LEN - 362. MM FY - 414. FC - 25. MPA, SIZE - 415. X 250. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	3 - 12MM	0.	362.	YES	YES

CRITICAL POS MOMENT= 1.62 KN-MET AT 362.MM, LOAD 1
REQD STEEL= 230.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 301./ 37./ 151. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 243. 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= 2.99 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 2.99 KNS Vc= 55.00 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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


246. END CON DESIGN
247. FINISH

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

           **** DATE= JAN 30,2000   TIME=  9:19:23 ****

      ************************************************************
      *        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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