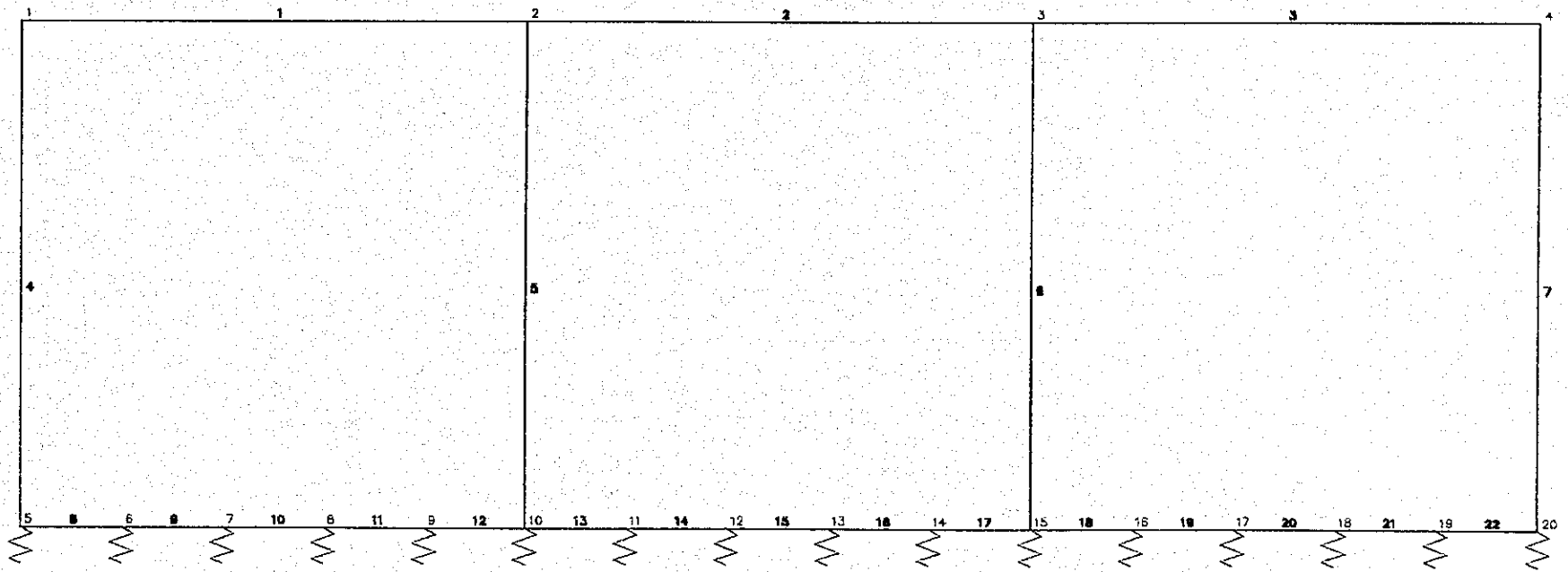
2-1-6 BOX CULVERT AT CH.6+266

(1) BOX CULVERT

BOX CULVERT AT CH. 5+266



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 ****************************************************
 *                                                  *
 *           S T A A D - III                        *
 *           Revision 22.3a                         *
 *           Proprietary Program of                 *
 *           Research Engineers, Inc.               *
 *           Date=    JAN 30, 2000                  *
 *           Time=    11:50:35                      *
 *                                                  *
 *      USER ID: Development Design Consultants L   *
 ****************************************************

  1. STAAD PLANE DESIGN OF BOX CULVERT AT CH. 5+266 (3 X 4.0 X 4.0)
  2. UNIT METER KNS
  3. PAGE LEN 80
  4. JOINT COORD
  5.  1  0.00  4.34  0.00
  6.  2  4.25  4.34  0.00
  7.  3  8.49  4.34  0.00
  8.  4 12.74  4.34  0.00
  9.  5  0.00  0.00  0.00    10    4.25  0.00  0.00
 10. 11  5.09  0.00  0.00    15    8.49  0.00  0.00
 11. 16  9.34  0.00  0.00    20   12.74  0.00  0.00
 12. MEMBER INCI
 13.   1     1     2     3
 14.   4     1     5
 15.   5     2    10
 16.   6     3    15
 17.   7     4    20
 18.   8     5     6    22
 19. MEMBER PROPERTY
 20. 1 TO 3   PRIS    YD     0.350 ZD 1.0
 21. 4  7     PRIS    YD     0.300 ZD 1.0
 22. 5  6     PRIS    YD     0.250 ZD 1.0
 23. 8 TO 22  PRIS    YD     0.325 ZD 1.0
 24. CONSTANT
 25. E 23.667E6 ALL
 26. DENSITY 23.56 ALL
 27. SUPPORT
 28. *6 TO 19 FIXED BUT MZ   KFY   1698
 29. *5  20 FIXED BUT   MZ   KFY    849
 30. 5 6 7 8     FIXED BUT MZ   KFY   2547
 31. 9 TO 16     FIXED BUT MZ   KFY   1683
 32. 17 18 19 20 FIXED BUT MZ   KFY   2547
 34. *
 35. LOAD  1  : SELFWEIGHT
 36. SELFWEIGHT  Y  -1
 37. LOAD  2  : FILL WEIGHT
 38. MEMBER LOAD
 39. 1  TO  3  UNI    GY    -14.91
 40. LOAD  3  : BACK FILL (MINIMUM)
 41. MEMBER LOAD
 42.  4 TRAP    GX     4.56  25.06
 43.  7 TRAP    GX    -4.56 -25.06
 44. LOAD  4  : BACK FILL (MAXIMUM)
 45. MEMBER LOAD
 46.  4 TRAP    GX    12.96  31.62  0.00  1.98
 47.  4 TRAP    GX    31.62  61.39  1.98  4.34
 48.  7 TRAP    GX   -12.96 -31.62  0.00  1.98
 49.  7 TRAP    GX   -31.62 -61.39  1.98  4.34
 50. LOAD 5   : LL IN ADJACENT SPANS
 51. MEMBER LOAD
 52.  1 UNI     GY   -51.35   1.43  2.81
 53.  2 UNI     GY   -51.35   1.45  2.84
 54. LOAD 6   : LL IN ALTERNATE SPAN
 55. MEMBER LOAD
 56.  1 UNI     GY   -51.35   1.43  2.81
 57.  3 UNI     GY   -51.35   1.43  2.81
 58. LOAD 7   : LL IN SPAN 1
 59. MEMBER LOAD
```

```
  1 UNI     GY   -51.35   1.43  2.81
LOAD 8   : LL IN SPAN 2
MEMBER LOAD
  2 UNI     GY   -51.35   1.43  2.81
LOAD 9   : MILITARY LOADING IN SPAN 1
MEMBER LOAD
  1 UNI     GY   -33.18   0.82  2.12
  1 UNI     GY   -33.18   2.12  3.42
LOAD 10  : MILITARY LOADING IN SPAN 2
MEMBER LOAD
  2 UNI     GY   -33.18   0.82  2.12
  2 UNI     GY   -33.18   2.12  3.42
LOAD 11  : LL IN SPAN 1 FOR MAX. SHEAR
MEMBER LOAD
  1 UNI     GY   -51.35   0.00  1.38
LOAD 12  : MILITARY LOADING IN SPAN 1 FOR MAX. SHEAR
MEMBER LOAD
  1 UNI     GY   -33.18   0.00  1.30
  1 UNI     GY   -33.18   1.30  2.60
*
LOAD COMB 13
1  1.3  2  1.3  4  1.3  11  2.171
LOAD COMB 14
1  1.3  2  1.3  4  1.3  12  2.171
*
LOAD COMB 15
1  1.3  2  1.3  4  1.3  5  2.171
LOAD COMB 16
1  1.3  2  1.3  4  1.3  6  2.171
LOAD COMB 17
1  1.3  2  1.3  4  1.3  7  2.171
LOAD COMB 18
1  1.3  2  1.3  4  1.3  8  2.171
LOAD COMB 19
1  1.3  2  1.3  4  1.3  9  2.171
LOAD COMB 20
1  1.3  2  1.3  4  1.3  10  2.171
*
LOAD COMB 21
1  1.3  2  1.3  3  1.3  5  2.171
LOAD COMB 22
1  1.3  2  1.3  3  1.3  6  2.171
LOAD COMB 23
1  1.3  2  1.3  3  1.3  7  2.171
LOAD COMB 24
1  1.3  2  1.3  3  1.3  8  2.171
LOAD COMB 25
1  1.3  2  1.3  3  1.3  9  2.171
LOAD COMB 26
1  1.3  2  1.3  3  1.3  10  2.171
LOAD COMB 27
1  1.3   4  1.3
*
```

113. PERFORM ANALYSIS

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

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 20/ 22/ 16
ORIGINAL/FINAL BAND-WIDTH = 16/ 4
TOTAL PRIMARY LOAD CASES = 12, TOTAL DEGREES OF FREEDOM = 44
SIZE OF STIFFNESS MATRIX = 440 DOUBLE PREC. WORDS
REQRD/AVAIL. DISK SPACE = 12.05/ 216.9 MB, EXMEM = 1956.5 MB

++ Processing Element Stiffness Matrix. 11:50:35
++ Processing Global Stiffness Matrix. 11:50:35
++ Processing Triangular Factorization. 11:50:35
++ Calculating Joint Displacements. 11:50:35
++ Calculating Member Forces. 11:50:35

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

MEMBER FORCE ENVELOPE

ALL UNITS ARE KNS METE

MAX AND MIN FORCE VALUES AMONGST ALL SECTION LOCATIONS

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
1	MAX	190.69	.00	14	132.60	.00	15			
		.00	.00	13	.00	.00	13	97.63 C	.00	15
	MIN	-159.77	4.25	25	-124.46	2.13	23			
		.00	4.25	27	.00	4.25	27	37.83 C	4.25	22
2	MAX	157.53	.00	26	108.24	.00	21			
		.00	.00	13	.00	.00	13	118.06 C	.00	20
	MIN	-157.40	4.24	20	-134.45	2.12	18			
		.00	4.24	27	.00	4.24	27	36.45 C	4.24	22
4	MAX	133.31	4.34	13	48.63	2.53	27			
		.00	.00	13	.00	.00	13	230.57 C	4.34	14
	MIN	-97.63	.00	15	-132.60	.00	15			
		.00	4.34	27	.00	4.34	27	36.29 C	3.98	27
5	MAX	2.16	.00	25	45.83	4.34	26			
		.00	.00	13	.00	.00	13	316.36 C	4.34	21
	MIN	-22.56	4.34	20	-53.78	.00	20			
		.00	4.34	27	.00	4.34	27	32.02 C	3.98	27
8	MAX	-46.39	.00	27	74.87	.85	21			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-147.14	.85	14	-106.94	.00	13			
		.00	.85	27	.00	.85	27	.00	.85	27
9	MAX	-11.83	.00	26	101.27	.85	21			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-72.73	.85	13	-17.90	.00	27			
		.00	.85	27	.00	.85	27	.00	.85	27
10	MAX	45.36	.00	21	101.27	.00	21			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-10.67	.85	27	6.41	.00	27			
		.00	.85	27	.00	.85	27	.00	.85	27
11	MAX	118.76	.00	21	74.01	.00	14			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	11.69	.85	27	-35.99	.85	20			
		.00	.85	27	.00	.85	27	.00	.85	27

MEMB		FY/ FZ	DIST	LD	MZ/ MY	DIST	LD	FX	DIST	LD
12	MAX	166.21	.00	21	18.23	.00	13			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	23.90	.85	27	-168.73	.85	21			
		.00	.85	27	.00	.85	27	.00	.85	27
13	MAX	-20.46	.00	27	-.67	.84	27			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-109.92	.84	21	-136.01	.00	21			
		.00	.84	27	.00	.84	27	.00	.84	27
14	MAX	-8.01	.00	27	23.05	.85	13			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-62.32	.85	21	-47.19	.00	21			
		.00	.85	27	.00	.85	27	.00	.85	27
15	MAX	4.20	.00	27	24.23	.85	14			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	-18.92	.85	25	2.19	.00	21			
		.00	.85	27	.00	.85	27	.00	.85	27
16	MAX	45.59	.00	22	24.23	.00	14			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	7.96	.85	27	-29.72	.85	26			
		.00	.85	27	.00	.85	27	.00	.85	27
17	MAX	87.19	.00	22	6.05	.00	19			
		.00	.00	13	.00	.00	13	.00	.00	13
	MIN	20.31	.85	27	-96.26	.85	26			
		.00	.85	27	.00	.85	27	.00	.85	27

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

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

LEN - 4250. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 350. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	71.	7 - 16MM	69.	4250.	NO	YES

```
|   CRITICAL POS MOMENT=    134.71 KN-MET  AT  2040.MM, LOAD  22 |
|   REQD STEEL=  1360.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   882./   41./  147. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   462. MMS          |
```

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
2	281.	12 - 12MM	0.	2838.	YES	NO

```
|   CRITICAL NEG MOMENT=    132.60 KN-MET  AT     0.MM, LOAD  15 |
|   REQD STEEL=  1337.MM2, ROW= .0048, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./   81. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
```

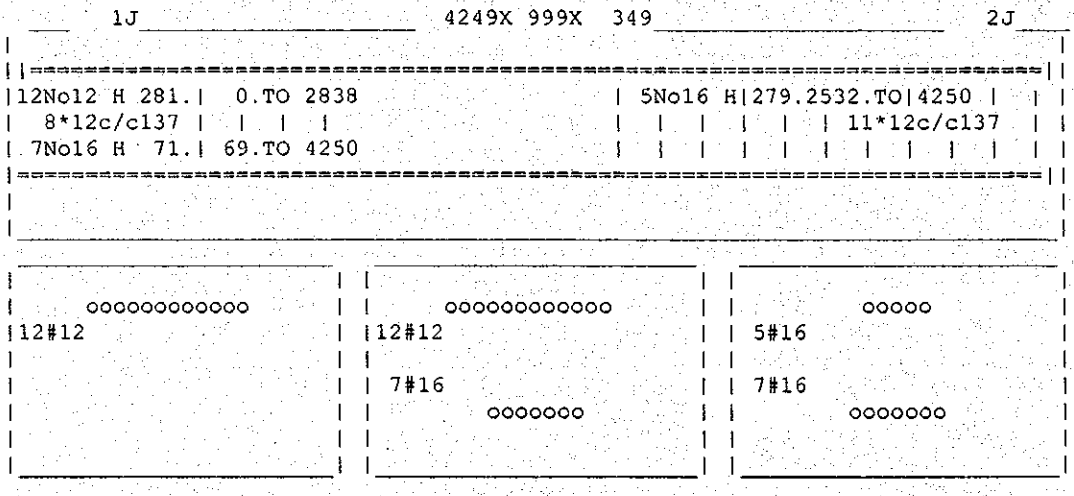
```
  3        279.     5 - 16MM      2532.         4250.        NO   YES
 |-------------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=     96.80 KN-MET  AT  4250.MM, LOAD  14    |
 |   REQD STEEL=   963.MM2, ROW= .0034, ROWMX= .0194 ROWMN= .0033    |
 |   MAX/MIN/ACTUAL BAR SPACING=   882./   41./  221. 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./ 1372.	0./ 133.	0/ 15
354.	0./ 814.	0./ 80.	0/ 20
708.	348./ 561.	35./ 56.	13/ 20
1062.	672./ 350.	67./ 35.	25/ 20
1417.	997./ 180.	98./ 18.	25/ 20
1771.	1203./ 96.	117./ 10.	22/ 27
2125.	1395./ 42.	135./ 4.	22/ 27
2479.	1180./ 1.	115./ 0.	23/ 27
2833.	960./ 0.	94./ 0.	25/ 0
3187.	616./ 30.	61./ 3.	25/ 13
3542.	174./ 270.	18./ 27.	19/ 13
3896.	28./ 553.	3./ 55.	27/ 13
4250.	3./ 987.	0./ 97.	27/ 14

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= 162.65 KNS Vc= 228.01 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 137. MM C/C FOR 885. MM
AT END SUPPORT - Vu= 151.50 KNS Vc= 228.01 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 137. MM C/C FOR 1240. MM



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

LEN - 4240. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 350. MMS

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

11-270

```
  1        71.     7 - 16MM          0.          4240.         YES  YES
|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=    134.45 KN-MET  AT  2162.MM, LOAD  18 |
|   REQD STEEL=  1357.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   882./   41./  147. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   461. MMS          |
|-------------------------------------------------------------------|

  2       281.    10 - 12MM          0.          4240.         YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=    108.24 KN-MET  AT     0.MM, LOAD  21 |
|   REQD STEEL=  1073.MM2, ROW= .0038, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   886./   37./   98. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   177./   359. MMS          |
|-------------------------------------------------------------------|

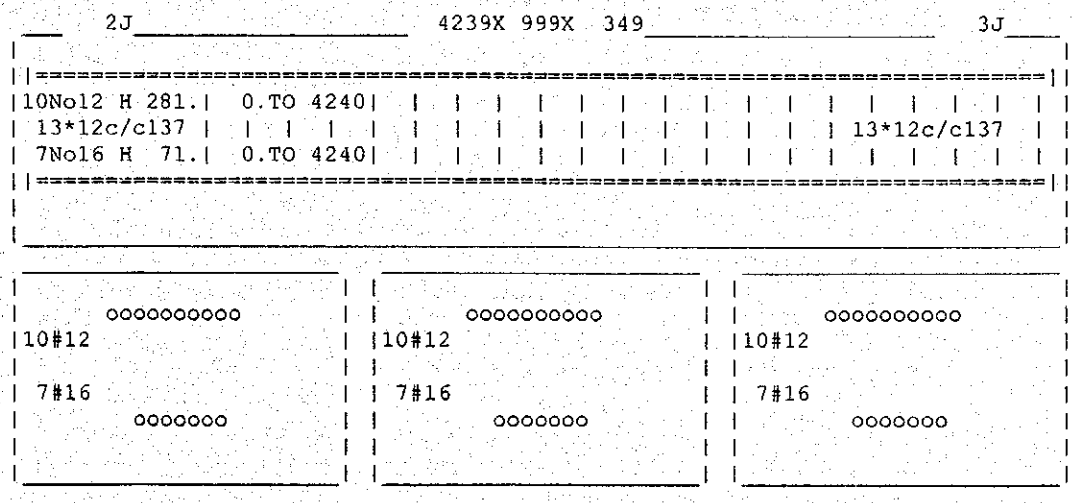
REQUIRED REINF. STEEL SUMMARY :
-------------------------------
SECTION      REINF STEEL(+VE/-VE)      MOMENTS(+VE/-VE)     LOAD(+VE/-VE)
( MM )          (SQ.  MM )                (KNS-MET )

    0.          0./    1109.          0./      108.        0/  21
  353.          6./     617.          1./       61.       27/  14
  707.        315./     397.         32./       40.       20/  14
 1060.        767./     262.         76./       26.       20/  22
 1413.       1104./     168.        108./       17.       20/  22
 1767.       1310./     111.        127./       11.       20/  22
 2120.       1392./      92.        134./        9.       18/  22
 2473.       1310./     110.        127./       11.       20/  22
 2827.       1105./     166.        108./       17.       20/  22
 3180.        769./     259.         76./       26.       20/  22
 3533.        317./     391.         32./       39.       20/  22
 3887.          7./     563.          1./       56.       27/  22
 4240.          0./     822.          0./       81.        0/  21


      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=  149.26 KNS  Vc=  228.01 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT 137. MM  C/C FOR 1590. MM

 AT END   SUPPORT - Vu=  149.13 KNS  Vc=  228.01 KNS  Vs=     .00 KNS
                    PROVIDE 12 MM BARS AT 137. MM  C/C FOR 1590. MM
```

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 122. CLEAR  0.065
 123. DESIGN BEAM 4 5 8 TO 17
```

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

LEN - 4340. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 300. MMS

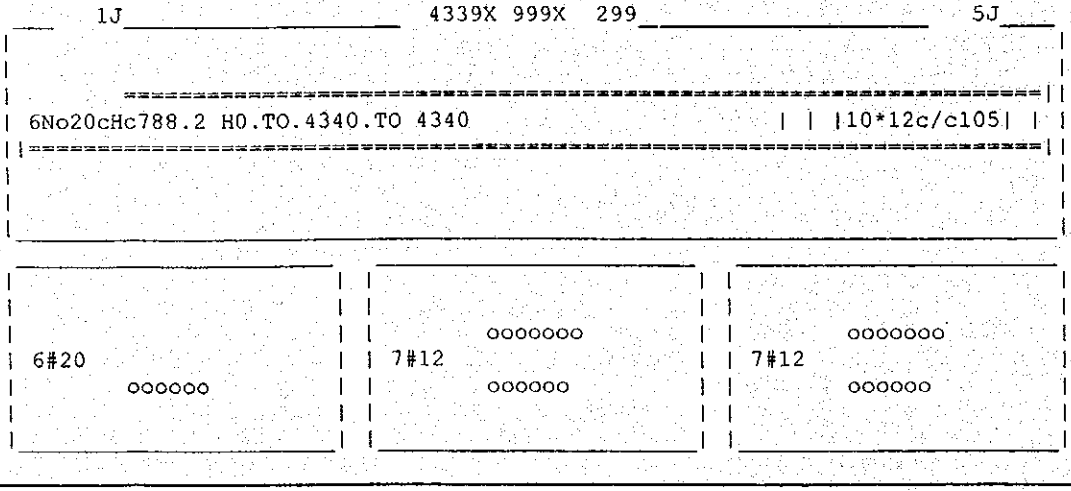
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	88.	6 - 20MM	0.	4340.	YES	YES
	CRITICAL POS MOMENT= 132.60 KN-MET AT 0.MM, LOAD 15					
	REQD STEEL= 1831.MM2, ROW= .0086, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 176. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 493./ 581. MMS					
2	216.	7 - 12MM	545.	4340.	NO	YES
	CRITICAL NEG MOMENT= 48.63 KN-MET AT 2532.MM, LOAD 27					
	REQD STEEL= 721.MM2, ROW= .0033, 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.	1877./	0.	133./	0.	15/	0
362.	1358./	0.	98./	0.	15/	0
723.	906./	0.	67./	0.	21/	0
1085.	681./	170.	51./	13.	21/	27
1447.	480./	386.	36./	29.	21/	27
1808.	310./	545.	24./	41.	21/	27
2170.	207./	636.	16./	48.	25/	27
2532.	158./	647.	12./	49.	25/	27
2893.	150./	627.	11./	47.	25/	20
3255.	188./	546.	14./	41.	22/	20
3617.	396./	357.	30./	27.	13/	20
3978.	857./	142.	64./	11.	13/	26
4340.	1484./	10.	107./	1.	13/	26

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

AT START SUPPORT - Vu= 93.88 KNS Vc= 174.04 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 105. MM C/C FOR 904. MM
AT END SUPPORT - Vu= 118.49 KNS Vc= 174.04 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 105. MM C/C FOR 904. MM



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

LEN - 4340. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 250. MMS

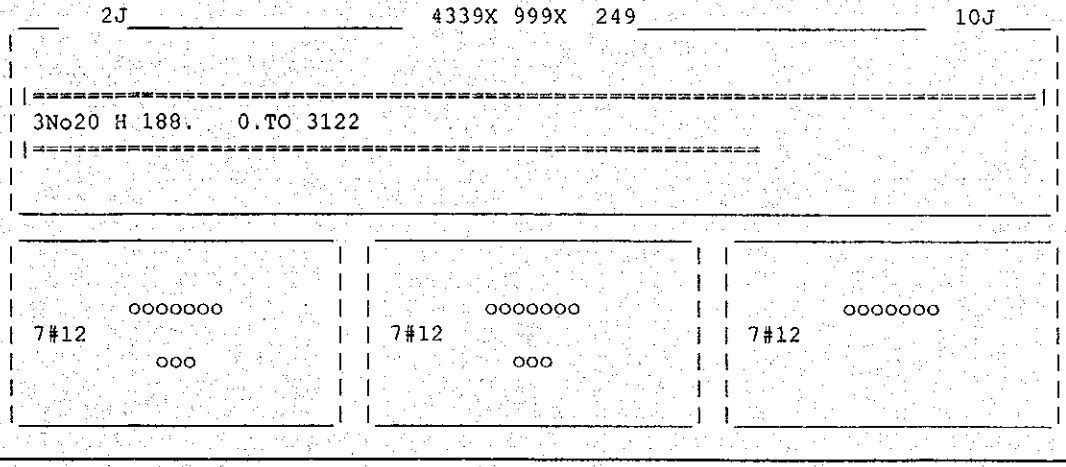
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	88.	3 - 20MM	0.	3122.	YES	NO
	CRITICAL POS MOMENT= 53.78 KN-MET AT 0.MM, LOAD 20					
	REQD STEEL= 931.MM2, ROW= .0057, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 439. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 493./ 590. MMS					
2	166.	7 - 12MM	0.	4340.	YES	YES
	CRITICAL NEG MOMENT= 45.83 KN-MET AT 4340.MM, LOAD 26					
	REQD STEEL= 775.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.	972./	259.	54./	15.	20/	25
362.	817./	245.	46./	14.	20/	25
723.	664./	232.	37./	13.	20/	25
1085.	514./	218.	29./	13.	20/	25
1447.	368./	204.	21./	12.	20/	25
1808.	224./	191.	13./	11.	20/	25
2170.	83./	177.	5./	10.	20/	22
2532.	8./	169.	0./	10.	27/	22
2893.	0./	242.	0./	14.	0/	21
3255.	0./	373.	0./	21.	0/	26
3617.	0./	519.	0./	30.	0/	26
3978.	0./	668.	0./	38.	0/	26
4340.	0./	821.	0./	46.	0/	26

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

AT START SUPPORT - Vu= 22.56 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 22.56 KNS Vc= 132.52 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



11-273

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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	88.	4 - 20MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 106.94 KN-MET AT 0.MM, LOAD 13					
	REQD STEEL= 1254.MM2, ROW= .0052, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 878./ 45./ 293. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 493./ 597. MMS					
2	241.	8 - 12MM	0.	850.	YES	YES
	CRITICAL NEG MOMENT= 74.87 KN-MET AT 850.MM, LOAD 21					
	REQD STEEL= 863.MM2, ROW= .0036, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 127. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS					

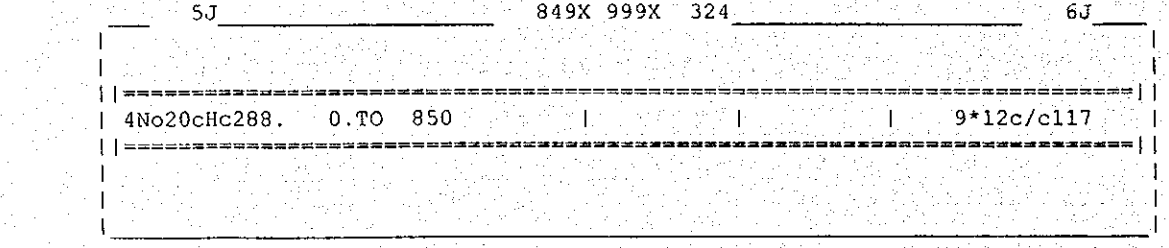
REQUIRED REINF. STEEL SUMMARY :

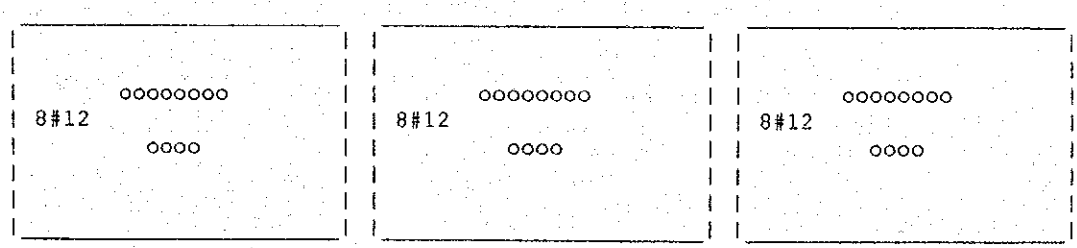
SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	1304./	8.	107./	1.	13/	26
71.	1177./	58.	97./	5.	13/	26
142.	1052./	109.	87./	9.	13/	26
212.	927./	160.	77./	14.	13/	26
283.	803./	212.	67./	18.	13/	26
354.	680./	265.	57./	23.	13/	26
425.	557./	346.	47./	30.	13/	21
496.	436./	434.	37./	37.	13/	21
567.	387./	524.	33./	44.	27/	21
637.	343./	615.	29./	52.	27/	21
708.	298./	707.	26./	60.	27/	21
779.	254./	801.	22./	67.	27/	21
850.	208./	897.	18./	75.	27/	21

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

AT START SUPPORT - Vu= 141.02 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM

AT END SUPPORT - Vu= 144.81 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM





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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

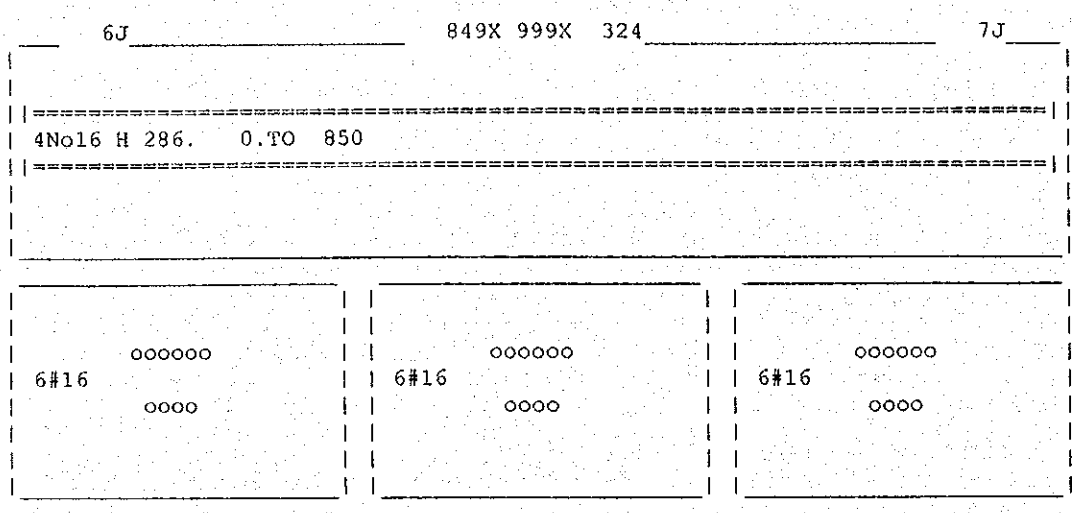
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	4 - 16MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 17.90 KN-MET AT 850.MM, LOAD 27					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
2	239.	6 - 16MM	0.	850.	YES	YES
	CRITICAL NEG MOMENT= 101.27 KN-MET AT 850.MM, LOAD 21					
	REQD STEEL= 1184.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 176. 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.	208./	897.	18./	75.	27/	21
71.	188./	921.	16./	77.	27/	21
142.	167./	945.	14./	79.	27/	21
212.	145./	971.	12./	81.	27/	21
283.	123./	997.	11./	83.	27/	21
354.	100./	1023.	9./	85.	27/	21
425.	77./	1051.	7./	87.	27/	21
496.	53./	1079.	5./	89.	27/	21
567.	29./	1108.	2./	92.	27/	21
637.	4./	1138.	0./	94.	27/	21
708.	0./	1168.	0./	96.	0/	21
779.	0./	1199.	0./	99.	0/	21
850.	0./	1231.	0./	101.	0/	21

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

AT START SUPPORT - Vu= 66.60 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 70.39 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	239.	6 - 16MM	0.	850.	YES	YES

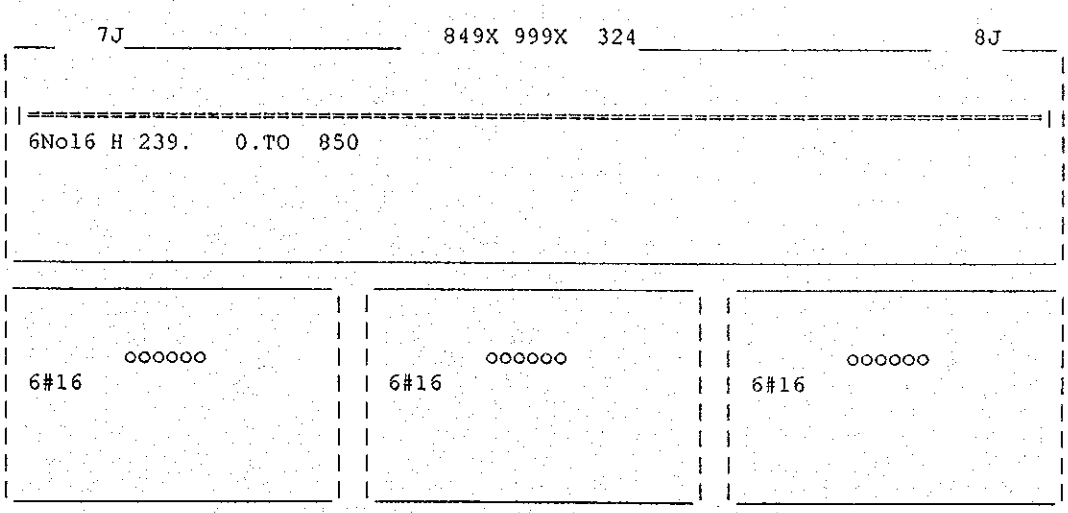
CRITICAL NEG MOMENT= 101.27 KN-MET AT 0.MM, LOAD 21
REQD STEEL= 1184.MM2, ROW= .0049, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 176. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 1231.	0./ 101.	0/ 21
71.	0./ 1190.	0./ 98.	0/ 21
142.	0./ 1150.	0./ 95.	0/ 21
212.	0./ 1110.	0./ 92.	0/ 21
283.	0./ 1072.	0./ 89.	0/ 21
354.	0./ 1034.	0./ 86.	0/ 21
425.	0./ 997.	0./ 83.	0/ 21
496.	0./ 961.	0./ 80.	0/ 21
567.	0./ 925.	0./ 77.	0/ 21
637.	0./ 895.	0./ 75.	0/ 14
708.	0./ 891.	0./ 74.	0/ 14
779.	0./ 888.	0./ 74.	0/ 14
850.	0./ 886.	0./ 74.	0/ 14

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

AT START SUPPORT - Vu= 43.03 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 39.24 KNS Vc= 194.80 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 - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	4 - 16MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 35.99 KN-MET AT 850.MM, LOAD 20					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
2	241.	8 - 12MM	0.	850.	YES	YES
	CRITICAL NEG MOMENT= 74.01 KN-MET AT 0.MM, LOAD 14					
	REQD STEEL= 853.MM2, ROW= .0035, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 127. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 359. MMS					

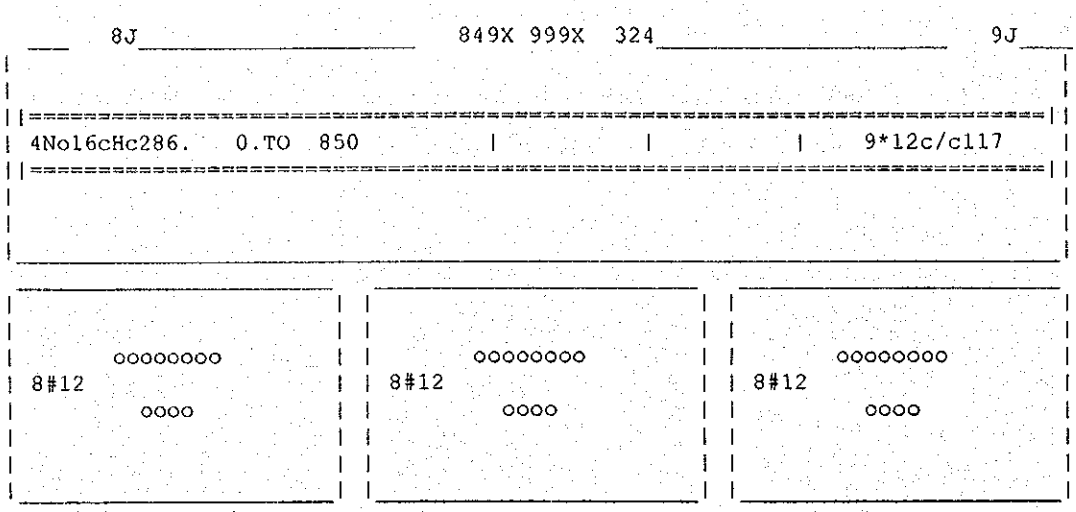
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	0./	886.	0./	74.	0/	14
71.	0./	817.	0./	68.	0/	14
142.	0./	751.	0./	63.	0/	13
212.	0./	693.	0./	58.	0/	13
283.	0./	636.	0./	54.	0/	13
354.	0./	580.	0./	49.	0/	13
425.	29./	525.	2./	45.	20/	13
496.	95./	471.	8./	40.	20/	13
567.	161./	417.	14./	36.	20/	13
637.	226./	365.	19./	31.	20/	13
708.	292./	313.	25./	27.	20/	13
779.	357./	262.	31./	22.	20/	13
850.	422./	212.	36./	18.	20/	13

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

AT START SUPPORT - Vu= 116.43 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM

AT END SUPPORT - Vu= 112.63 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM



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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

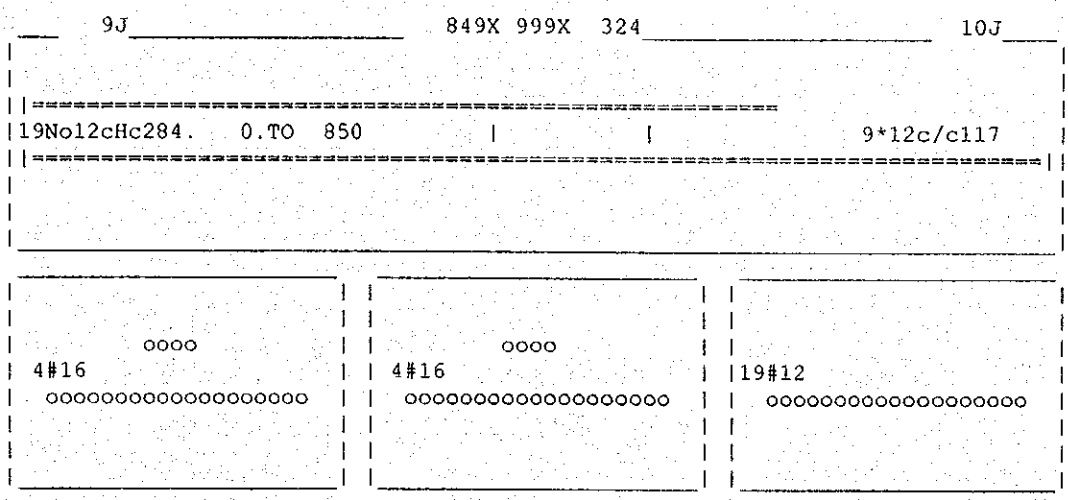
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	19 - 12MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 168.73 KN-MET AT 850.MM, LOAD 21					
	REQD STEEL= 2047.MM2, ROW= .0085, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 49. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 177./ 342. MMS					
2	239.	4 - 16MM	0.	620.	YES	NO
	CRITICAL NEG MOMENT= 18.23 KN-MET AT 0.MM, LOAD 13					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. 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.	422./ 212.	36./ 18.	20/ 13
71.	528./ 124.	45./ 11.	26/ 13
142.	646./ 38.	54./ 3.	21/ 13
212.	788./ 0.	66./ 0.	21/ 0
283.	932./ 0.	78./ 0.	21/ 0
354.	1078./ 0.	89./ 0.	21/ 0
425.	1224./ 0.	101./ 0.	21/ 0
496.	1372./ 0.	112./ 0.	21/ 0
567.	1522./ 0.	124./ 0.	21/ 0
637.	1673./ 0.	135./ 0.	21/ 0
708.	1825./ 0.	146./ 0.	21/ 0
779.	1979./ 0.	158./ 0.	21/ 0
850.	2135./ 0.	169./ 0.	21/ 0

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

AT START SUPPORT - Vu= 163.87 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM
AT END SUPPORT - Vu= 160.08 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 850. MM



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

LEN - 840. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	84.	15 - 12MM	0.	840.	YES	YES

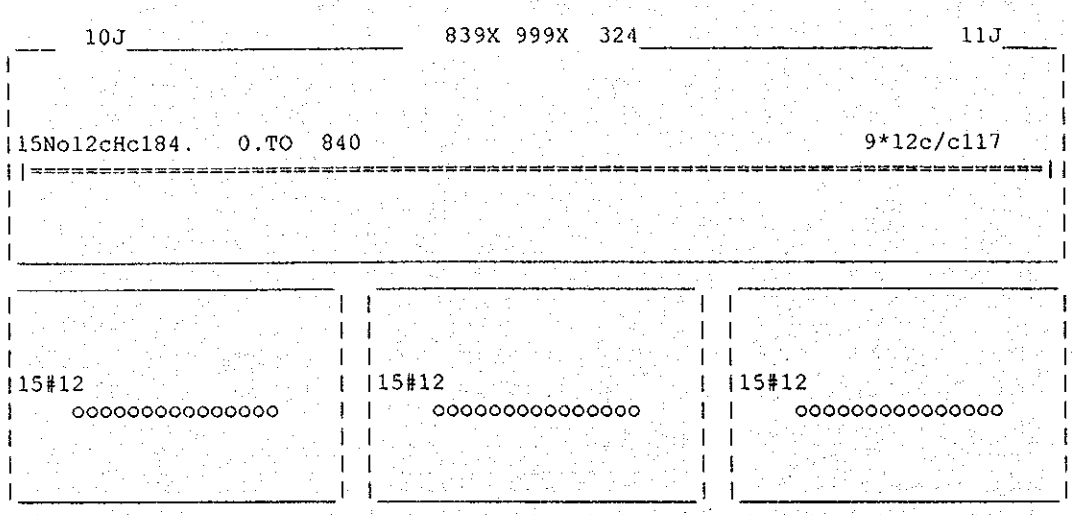
CRITICAL POS MOMENT= 136.01 KN-MET AT 0.MM, LOAD 21
REQD STEEL= 1620.MM2, ROW= .0067, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 886./ 37./ 63. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 177./ 343. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	1687./	0.	136./	0.	21/	0
70.	1591./	0.	129./	0.	21/	0
140.	1496./	0.	122./	0.	21/	0
210.	1401./	0.	114./	0.	21/	0
280.	1307./	0.	107./	0.	21/	0
350.	1212./	0.	100./	0.	21/	0
420.	1118./	0.	92./	0.	21/	0
490.	1024./	0.	85./	0.	21/	0
560.	930./	0.	78./	0.	21/	0
630.	837./	0.	70./	0.	21/	0
700.	743./	0.	62./	0.	21/	0
770.	650./	0.	55./	0.	21/	0
840.	557./	0.	47./	0.	21/	0

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

AT START SUPPORT - Vu= 103.89 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 840. MM
AT END SUPPORT - Vu= 107.58 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 840. MM



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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

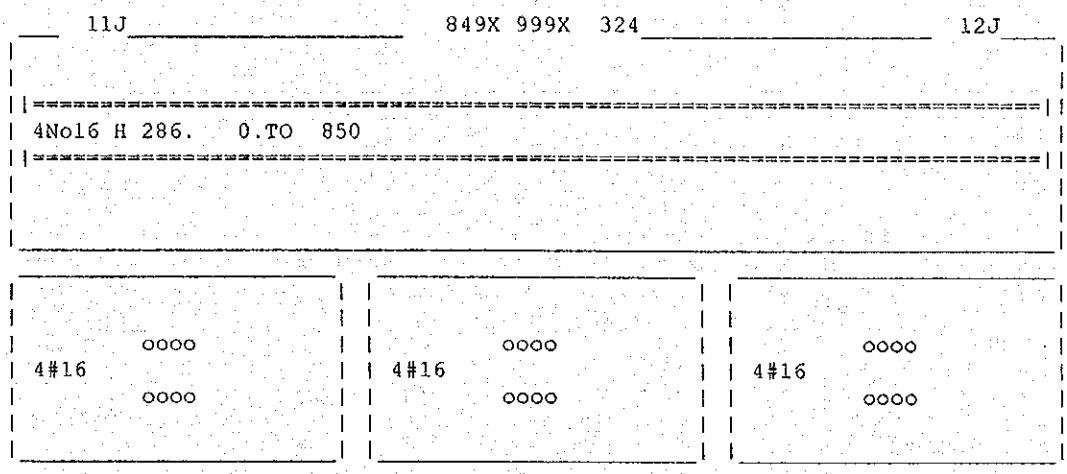
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	4 - 16MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 47.19 KN-MET AT 0.MM, LOAD 21					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
2	239.	4 - 16MM	0.	850.	YES	YES
	CRITICAL NEG MOMENT= 23.05 KN-MET AT 850.MM, LOAD 13					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. 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.	557./	0.	47./	0.	21/	0
71.	511./	0.	43./	0.	21/	0
142.	464./	6.	39./	1.	21/	27
212.	417./	20.	36./	2.	21/	13
283.	369./	45.	32./	4.	21/	13
354.	321./	71.	27./	6.	21/	13
425.	273./	97.	23./	8.	21/	13
496.	224./	124.	19./	11.	21/	13
567.	175./	152.	15./	13.	21/	13
637.	125./	180.	11./	15.	21/	13
708.	76./	209.	7./	18.	21/	13
779.	25./	238.	2./	20.	21/	13
850.	0./	269.	0./	23.	0/	13

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= 56.19 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 59.99 KNS Vc= 194.80 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 - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	239.	4 - 16MM	0.	850.	YES	YES

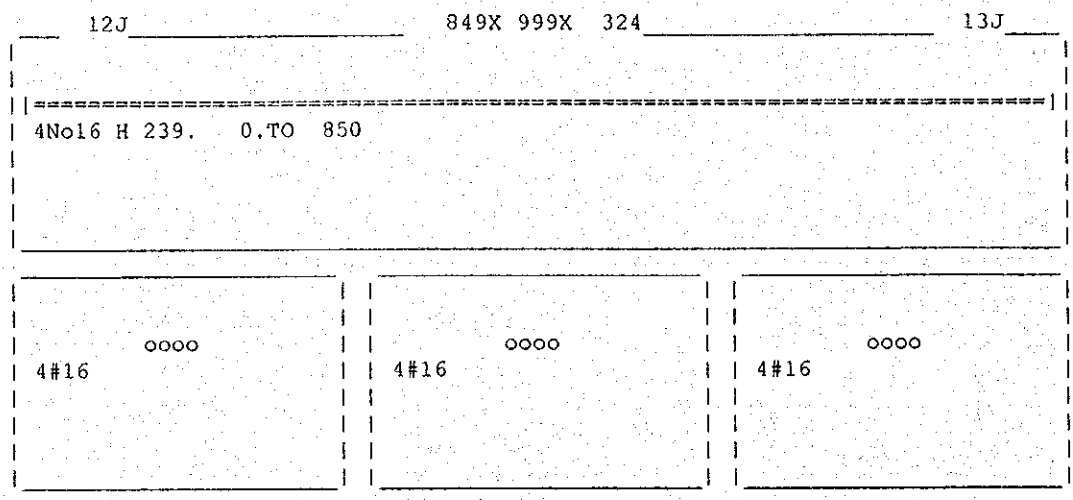
CRITICAL NEG MOMENT= 24.23 KN-MET AT 850.MM, LOAD 14
REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS

REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)	MOMENTS(+VE/-VE) (KNS-MET)	LOAD(+VE/-VE)
0.	0./ 269.	0./ 23.	0/ 13
71.	0./ 266.	0./ 23.	0/ 13
142.	0./ 263.	0./ 23.	0/ 13
212.	0./ 261.	0./ 22.	0/ 13
283.	0./ 260.	0./ 22.	0/ 13
354.	0./ 259.	0./ 22.	0/ 13
425.	0./ 258.	0./ 22.	0/ 13
496.	0./ 259.	0./ 22.	0/ 13
567.	0./ 260.	0./ 22.	0/ 13
637.	0./ 261.	0./ 22.	0/ 13
708.	0./ 265.	0./ 23.	0/ 14
779.	0./ 274.	0./ 23.	0/ 14
850.	0./ 283.	0./ 24.	0/ 14

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

AT START SUPPORT - Vu= 12.80 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 16.59 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

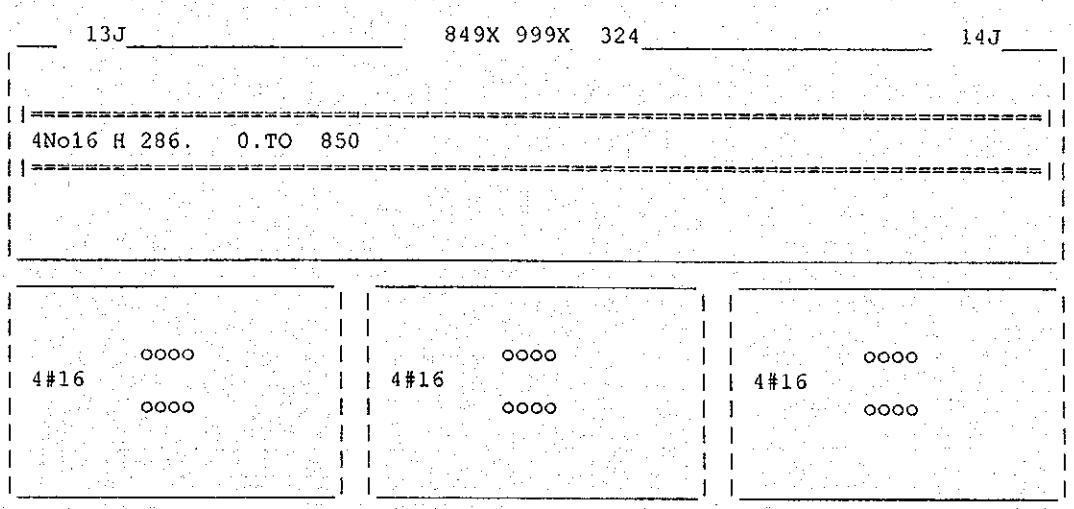
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	4 - 16MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 29.72 KN-MET AT 850.MM, LOAD 26					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					
2	239.	4 - 16MM	0.	850.	YES	YES
	CRITICAL NEG MOMENT= 24.23 KN-MET AT 0.MM, LOAD 14					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. 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./	283.	0./	24.	0/	14
71.	0./	258.	0./	22.	0/	14
142.	29./	234.	3./	20.	26/	14
212.	63./	210.	5./	18.	26/	14
283.	97./	188.	8./	16.	26/	14
354.	130./	170.	11./	15.	26/	19
425.	163./	154.	14./	13.	26/	19
496.	195./	139.	17./	12.	26/	19
567.	226./	124.	19./	11.	26/	19
637.	257./	109.	22./	9.	26/	19
708.	288./	96.	25./	8.	26/	19
779.	318./	82.	27./	7.	26/	19
850.	348./	70.	30./	6.	26/	19

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

AT START SUPPORT - Vu= 43.26 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 39.47 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



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

LEN - 850. MM FY - 414. FC - 25. MPA, SIZE - 1000. X 325. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	6 - 16MM	0.	850.	YES	YES
	CRITICAL POS MOMENT= 96.26 KN-MET AT 850.MM, LOAD 26					
	REQD STEEL= 1133.MM2, ROW= .0047, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 176. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 449. MMS					
2	239.	4 - 16MM	0.	549.	YES	NO
	CRITICAL NEG MOMENT= 6.05 KN-MET AT 0.MM, LOAD 19					
	REQD STEEL= 804.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033					
	MAX/MIN/ACTUAL BAR SPACING= 882./ 41./ 294. MMS					
	BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. MMS					

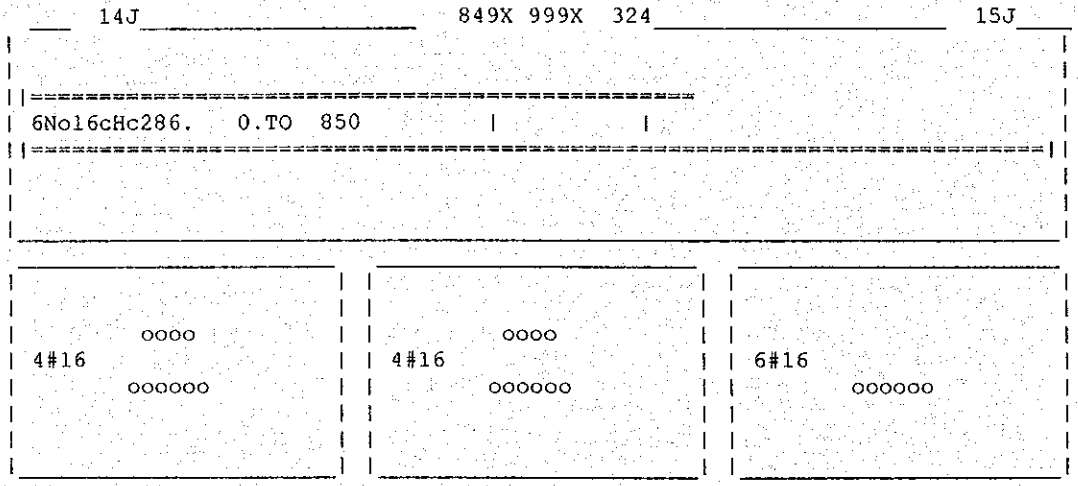
REQUIRED REINF. STEEL SUMMARY :

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
0.	348./	70.	30./	6.	26/	19
71.	417./	25.	36./	2.	26/	19
142.	486./	0.	41./	0.	26/	0
212.	555./	0.	47./	0.	26/	0
283.	624./	0.	53./	0.	26/	0
354.	692./	0.	58./	0.	26/	0
425.	761./	0.	64./	0.	26/	0
496.	829./	0.	69./	0.	26/	0
567.	897./	0.	75./	0.	26/	0
637.	964./	0.	80./	0.	26/	0

SECTION (MM)	REINF STEEL(+VE/-VE) (SQ. MM)		MOMENTS(+VE/-VE) (KNS-MET)		LOAD(+VE/-VE)	
708.	1032./	0.	86./	0.	26/	0
779.	1099./	0.	91./	0.	26/	0
850.	1166./	0.	96./	0.	26/	0

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

AT START SUPPORT - Vu= 84.85 KNS Vc= 194.80 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 117. MM C/C FOR 460. MM
AT END SUPPORT - Vu= 81.06 KNS Vc= 194.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



124. END CONC DESIGN
125. FINISH

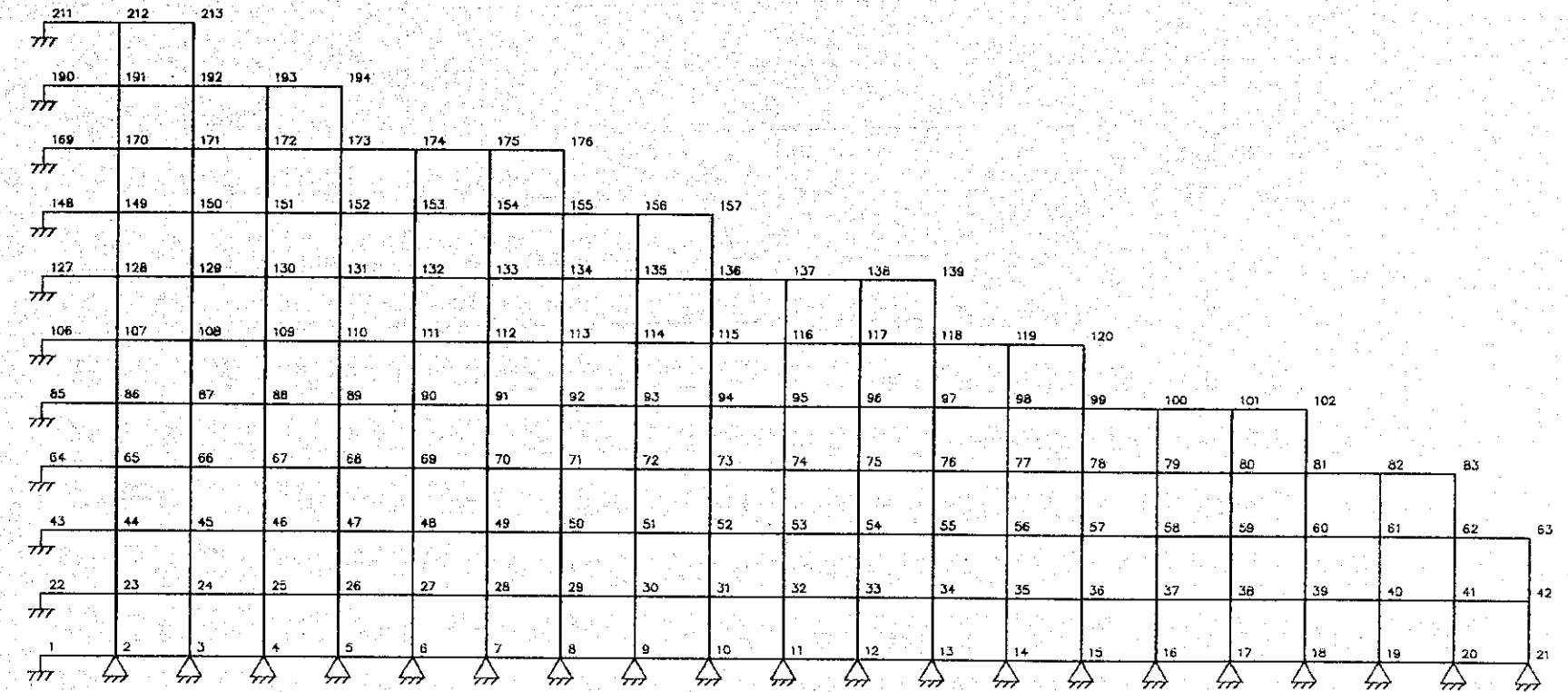
********** END OF STAAD-III **********

**** DATE= JAN 30,2000 TIME= 11:50:36 ****

2-1-6 BOX CULVERT AT CH.6+266

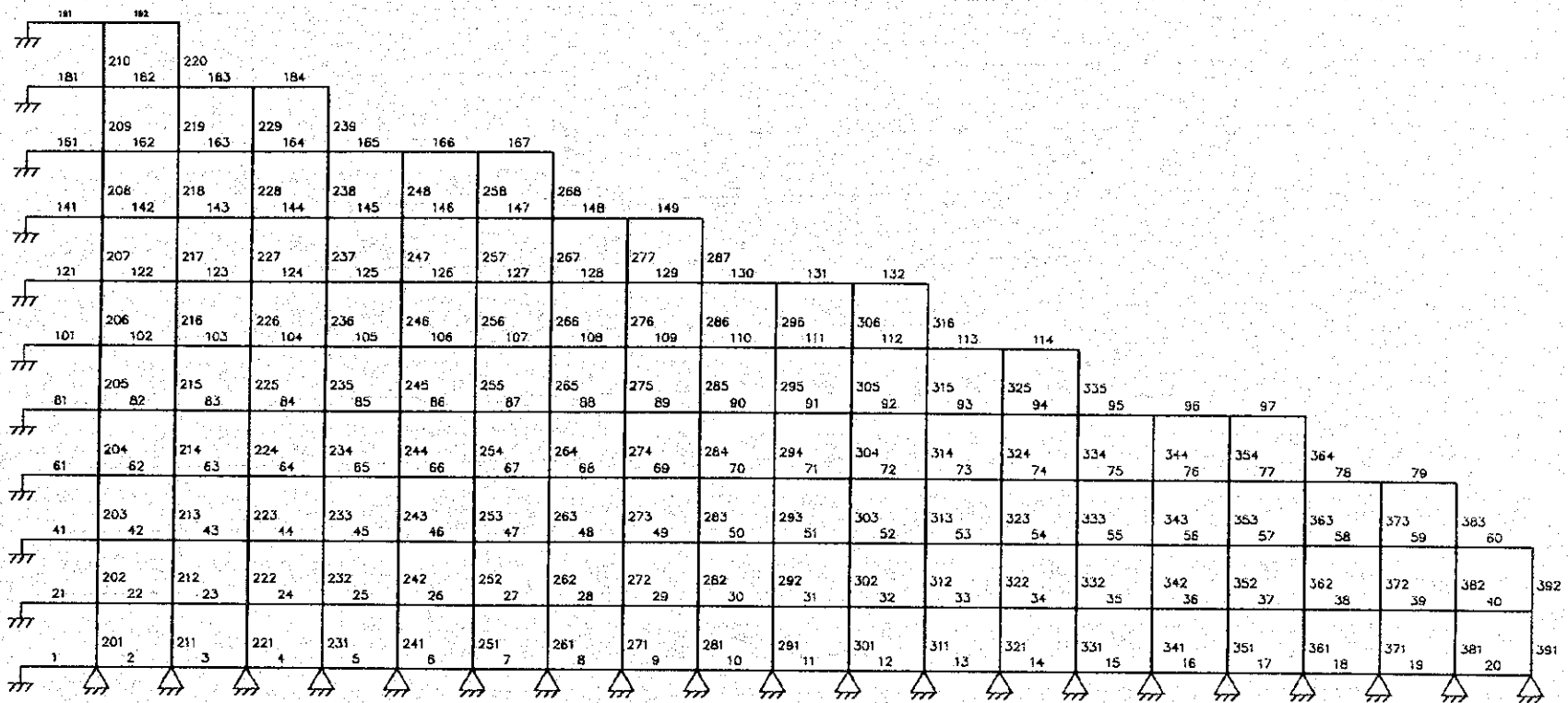
(2) WING WALL

WING WALL AT CH. 5+266



WING WALL WITH JOINT NUMBER

WING WALL AT CH. 5+266



WING WALL WITH MEMBER NUMBER

11-286

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 ****************************************************
 *                                                  *
 *           S T A A D - III                        *
 *           Revision 22.3a                         *
 *           Proprietary Program of                 *
 *           Research Engineers, Inc.               *
 *           Date=    JAN 30, 2000                  *
 *           Time=     9:18: 6                      *
 *                                                  *
 *      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  11.20 0.000 0.000
  6. R          2 0.000 0.000 0.493
  7. 64     0.000 0.000 1.478    83 10.640 0.000 1.478
  8. 85     0.000 0.000 1.970   102  9.520 0.000 1.970
  9. 106    0.000 0.000 2.463   120  7.840 0.000 2.463
 10. 127    0.000 0.000 2.955   139  6.720 0.000 2.955
 11. 148    0.000 0.000 3.448   157  5.040 0.000 3.448
 12. 169    0.000 0.000 3.940   176  3.920 0.000 3.940
 13. 190    0.000 0.000 4.433   194  2.240 0.000 4.433
 14. 211    0.000 0.000 4.925   213  1.120 0.000 4.925
 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    2.700  ZD    0.35  IX    1E-06
 49. 21    TO    40    PRI   YD    0.300  ZD    0.493 IX    1E-06
 50. 41    TO    60    PRI   YD    0.300  ZD    0.493 IX    1E-06
 51. 61    TO    79    PRI   YD    0.300  ZD    0.493 IX    1E-06
 52. 81    TO    97    PRI   YD    0.300  ZD    0.493 IX    1E-06
 53. 101   TO    114   PRI   YD    0.300  ZD    0.493 IX    1E-06
 54. 121   TO    132   PRI   YD    0.300  ZD    0.493 IX    1E-06
 55. 141   TO    149   PRI   YD    0.300  ZD    0.493 IX    1E-06
 56. 161   TO    167   PRI   YD    0.300  ZD    0.493 IX    1E-06
 57. 181   TO    184   PRI   YD    0.300  ZD    0.493 IX    1E-06
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 58. 191   TO   192   PRI   YD   0.300   ZD   0.493 IX   1E-06
 59. *VERTICAL
 60. 201   TO   210   PRI   YD   0.300   ZD   0.560 IX   1E-06
 61. 211   TO   220   PRI   YD   0.300   ZD   0.560 IX   1E-06
 62. 221   TO   229   PRI   YD   0.300   ZD   0.560 IX   1E-06
 63. 231   TO   239   PRI   YD   0.300   ZD   0.560 IX   1E-06
 64. 241   TO   248   PRI   YD   0.300   ZD   0.560 IX   1E-06
 65. 251   TO   258   PRI   YD   0.300   ZD   0.560 IX   1E-06
 66. 261   TO   268   PRI   YD   0.300   ZD   0.560 IX   1E-06
 67. 271   TO   277   PRI   YD   0.300   ZD   0.560 IX   1E-06
 68. 281   TO   287   PRI   YD   0.300   ZD   0.560 IX   1E-06
 69. 291   TO   296   PRI   YD   0.300   ZD   0.560 IX   1E-06
 70. 301   TO   306   PRI   YD   0.300   ZD   0.560 IX   1E-06
 71. 311   TO   316   PRI   YD   0.300   ZD   0.560 IX   1E-06
 72. 321   TO   325   PRI   YD   0.300   ZD   0.560 IX   1E-06
 73. 331   TO   335   PRI   YD   0.300   ZD   0.560 IX   1E-06
 74. 341   TO   344   PRI   YD   0.300   ZD   0.560 IX   1E-06
 75. 351   TO   354   PRI   YD   0.300   ZD   0.560 IX   1E-06
 76. 361   TO   364   PRI   YD   0.300   ZD   0.560 IX   1E-06
 77. 371   TO   373   PRI   YD   0.300   ZD   0.560 IX   1E-06
 78. 381   TO   383   PRI   YD   0.300   ZD   0.560 IX   1E-06
 79. 391   TO   392   PRI   YD   0.300   ZD   0.560 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    -26.70
 92. 3     FY    -25.84
 93. 4     FY    -24.99
 94. 5     FY    -24.13
 95. 6     FY    -23.28
 96. 7     FY    -22.42
 97. 8     FY    -21.56
 98. 9     FY    -20.71
 99. 10    FY    -19.85
100. 11    FY    -18.99
101. 12    FY    -18.14
102. 13    FY    -17.28
103. 14    FY    -16.43
104. 15    FY      0.00
105. 16    FY      0.00
106. 17    FY      0.00
107. 18    FY      0.00
108. 19    FY      0.00
109. 20    FY      0.00
110. 21    FY      0.00
111. 23    FY    -18.45
112. 24    FY    -17.74
113. 25    FY    -17.04
114. 26    FY    -16.33
115. 27    FY    -15.62
116. 28    FY    -14.91
117. 29    FY    -14.21
118. 30    FY    -13.50
119. 31    FY    -12.79
120. 32    FY    -12.09
121. 33    FY    -11.38
122. 34    FY    -10.67
123. 35    FY     -9.96
124. 36    FY      0.00
125. 37    FY      0.00
126. 38    FY      0.00
127. 39    FY      0.00
128. 40    FY      0.00
129. 41    FY      0.00
130. 42    FY      0.00
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131.	44	FY	-15.36
132.	45	FY	-14.65
133.	46	FY	-13.94
134.	47	FY	-13.24
135.	48	FY	-12.53
136.	49	FY	-11.82
137.	50	FY	-11.12
138.	51	FY	-10.41
139.	52	FY	-9.70
140.	53	FY	-8.99
141.	54	FY	-8.29
142.	55	FY	-7.58
143.	56	FY	-6.87
144.	57	FY	0.00
145.	58	FY	0.00
146.	59	FY	0.00
147.	60	FY	0.00
148.	61	FY	0.00
149.	62	FY	0.00
150.	63	FY	0.00
151.	65	FY	-12.27
152.	66	FY	-11.56
153.	67	FY	-10.85
154.	68	FY	-10.15
155.	69	FY	-9.44
156.	70	FY	-8.73
157.	71	FY	-8.02
158.	72	FY	-7.32
159.	73	FY	-6.61
160.	74	FY	-5.90
161.	75	FY	-5.20
162.	76	FY	-4.49
163.	77	FY	-3.78
164.	78	FY	0.00
165.	79	FY	0.00
166.	80	FY	0.00
167.	81	FY	0.00
168.	82	FY	0.00
169.	83	FY	0.00
170.	86	FY	-9.90
171.	87	FY	-9.19
172.	88	FY	-8.49
173.	89	FY	-7.78
174.	90	FY	-7.07
175.	91	FY	-6.37
176.	92	FY	-5.66
177.	93	FY	-4.95
178.	94	FY	-4.24
179.	95	FY	-3.54
180.	96	FY	-2.83
181.	97	FY	-2.12
182.	98	FY	-1.41
183.	99	FY	0.00
184.	100	FY	0.00
185.	101	FY	0.00
186.	102	FY	0.00
187.	107	FY	-8.13
188.	108	FY	-7.43
189.	109	FY	-6.72
190.	110	FY	-6.01
191.	111	FY	-5.30
192.	112	FY	-4.60
193.	113	FY	-3.89
194.	114	FY	-3.18
195.	115	FY	-2.48
196.	116	FY	-1.77
197.	117	FY	-1.06
198.	118	FY	-0.35
199.	119	FY	0.00
200.	120	FY	0.00

201.	128	FY	-6.37
202.	129	FY	-5.66
203.	130	FY	-4.95
204.	131	FY	-4.24
205.	132	FY	-3.54
206.	133	FY	-2.83
207.	134	FY	-2.12
208.	135	FY	-1.41
209.	136	FY	-0.71
210.	137	FY	0.00
211.	138	FY	0.00
212.	139	FY	0.00
213.	149	FY	-4.60
214.	150	FY	-3.89
215.	151	FY	-3.18
216.	152	FY	-2.48
217.	153	FY	-1.77
218.	154	FY	-1.06
219.	155	FY	-0.35
220.	156	FY	0.00
221.	157	FY	0.00
222.	170	FY	-2.83
223.	171	FY	-2.12
224.	172	FY	-1.41
225.	173	FY	-0.71
226.	174	FY	0.00
227.	175	FY	0.00
228.	176	FY	0.00
229.	191	FY	-1.06
230.	192	FY	-0.35
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/ 246.1 MB, EXMEM = 1964.5 MB

++ Processing Element Stiffness Matrix. 9:18: 7
++ Processing Global Stiffness Matrix. 9:18: 7
++ Processing Triangular Factorization. 9:18: 7
++ Calculating Joint Displacements. 9:18: 7
++ Calculating Member Forces. 9:18: 7

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	704.09	.00	.00	.00	2696.95
		2	.00	-704.09	.00	.00	.00	-2302.67
2	1	2	.00	669.87	.00	.00	.00	2302.66
		3	.00	-669.87	.00	.00	.00	-1927.54
3	1	3	.00	617.47	.00	.00	.00	1927.53
		4	.00	-617.47	.00	.00	.00	-1581.75
4	1	4	.00	555.54	.00	.00	.00	1581.75
		5	.00	-555.54	.00	.00	.00	-1270.65
5	1	5	.00	489.65	.00	.00	.00	1270.65
		6	.00	-489.65	.00	.00	.00	-996.44
6	1	6	.00	423.11	.00	.00	.00	996.44
		7	.00	-423.11	.00	.00	.00	-759.50
7	1	7	.00	358.19	.00	.00	.00	759.50
		8	.00	-358.19	.00	.00	.00	-558.91
8	1	8	.00	296.31	.00	.00	.00	558.90
		9	.00	-296.31	.00	.00	.00	-392.97
9	1	9	.00	238.16	.00	.00	.00	392.98
		10	.00	-238.16	.00	.00	.00	-259.61
10	1	10	.00	184.09	.00	.00	.00	259.61
		11	.00	-184.09	.00	.00	.00	-156.52
11	1	11	.00	134.22	.00	.00	.00	156.52
		12	.00	-134.22	.00	.00	.00	-81.36
12	1	12	.00	88.54	.00	.00	.00	81.36
		13	.00	-88.54	.00	.00	.00	-31.77
13	1	13	.00	47.54	.00	.00	.00	31.78
		14	.00	-47.54	.00	.00	.00	-5.15
14	1	14	.00	13.33	.00	.00	.00	5.16
		15	.00	-13.33	.00	.00	.00	2.31

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
15	1	15	.00	4.51	.00	.00	.00	-2.31
		16	.00	-4.51	.00	.00	.00	4.84
16	1	16	.00	.61	.00	.00	.00	-4.84
		17	.00	-.61	.00	.00	.00	5.18
17	1	17	.00	-1.57	.00	.00	.00	-5.18
		18	.00	1.57	.00	.00	.00	4.30
18	1	18	.00	-2.64	.00	.00	.00	-4.30
		19	.00	2.64	.00	.00	.00	2.82
19	1	19	.00	-2.73	.00	.00	.00	-2.82
		20	.00	2.73	.00	.00	.00	1.29
20	1	20	.00	-2.31	.00	.00	.00	-1.29
		21	.00	2.31	.00	.00	.00	.00
21	1	22	.00	19.90	.00	.00	.00	16.53
		23	.00	-19.90	.00	.00	.00	-5.38
22	1	23	.00	4.76	.00	.00	.00	5.38
		24	.00	-4.76	.00	.00	.00	-2.72
23	1	24	.00	1.53	.00	.00	.00	2.72
		25	.00	-1.53	.00	.00	.00	-1.86
24	1	25	.00	.95	.00	.00	.00	1.86
		26	.00	-.95	.00	.00	.00	-1.33
25	1	26	.00	.70	.00	.00	.00	1.33
		27	.00	-.70	.00	.00	.00	-.94
26	1	27	.00	.52	.00	.00	.00	.94
		28	.00	-.52	.00	.00	.00	-.65
27	1	28	.00	.37	.00	.00	.00	.65
		29	.00	-.37	.00	.00	.00	-.44
28	1	29	.00	.33	.00	.00	.00	.44
		30	.00	-.33	.00	.00	.00	-.26
29	1	30	.00	.35	.00	.00	.00	.26
		31	.00	-.35	.00	.00	.00	-.07
30	1	31	.00	.33	.00	.00	.00	.07
		32	.00	-.33	.00	.00	.00	.12
31	1	32	.00	.31	.00	.00	.00	-.12
		33	.00	-.31	.00	.00	.00	.29
32	1	33	.00	.35	.00	.00	.00	-.29
		34	.00	-.35	.00	.00	.00	.48
33	1	34	.00	.14	.00	.00	.00	-.48
		35	.00	-.14	.00	.00	.00	.56
34	1	35	.00	-1.84	.00	.00	.00	-.56
		36	.00	1.84	.00	.00	.00	-.47
35	1	36	.00	.08	.00	.00	.00	.47
		37	.00	-.08	.00	.00	.00	-.43
36	1	37	.00	.17	.00	.00	.00	.43
		38	.00	-.17	.00	.00	.00	-.34
37	1	38	.00	.29	.00	.00	.00	.34
		39	.00	-.29	.00	.00	.00	-.17

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
38	1	39	.00	-.33	.00	.00	.00	.17
		40	.00	.33	.00	.00	.00	-.36
39	1	40	.00	.38	.00	.00	.00	.36
		41	.00	-.38	.00	.00	.00	-.14
40	1	41	.00	.26	.00	.00	.00	.14
		42	.00	-.26	.00	.00	.00	.00
41	1	43	.00	23.81	.00	.00	.00	22.35
		44	.00	-23.81	.00	.00	.00	-9.01
42	1	44	.00	11.28	.00	.00	.00	9.02
		45	.00	-11.28	.00	.00	.00	-2.70
43	1	45	.00	4.10	.00	.00	.00	2.70
		46	.00	-4.10	.00	.00	.00	-.40
44	1	46	.00	1.37	.00	.00	.00	.40
		47	.00	-1.37	.00	.00	.00	.37
45	1	47	.00	.41	.00	.00	.00	-.37
		48	.00	-.41	.00	.00	.00	.60
46	1	48	.00	.03	.00	.00	.00	-.60
		49	.00	-.03	.00	.00	.00	.62
47	1	49	.00	-.18	.00	.00	.00	-.62
		50	.00	.18	.00	.00	.00	.52
48	1	50	.00	-.16	.00	.00	.00	-.52
		51	.00	.16	.00	.00	.00	.43
49	1	51	.00	.19	.00	.00	.00	-.43
		52	.00	-.19	.00	.00	.00	.54
50	1	52	.00	.40	.00	.00	.00	-.54
		53	.00	-.40	.00	.00	.00	.76
51	1	53	.00	.39	.00	.00	.00	-.76
		54	.00	-.39	.00	.00	.00	.99
52	1	54	.00	.20	.00	.00	.00	-.99
		55	.00	-.20	.00	.00	.00	1.10
53	1	55	.00	-.53	.00	.00	.00	-1.10
		56	.00	.53	.00	.00	.00	.80
54	1	56	.00	-2.70	.00	.00	.00	-.80
		57	.00	2.70	.00	.00	.00	-.71
55	1	57	.00	-.53	.00	.00	.00	.71
		58	.00	.53	.00	.00	.00	-1.00
56	1	58	.00	-.44	.00	.00	.00	1.01
		59	.00	.44	.00	.00	.00	-1.25
57	1	59	.00	.68	.00	.00	.00	1.25
		60	.00	-.68	.00	.00	.00	-.87
58	1	60	.00	-.36	.00	.00	.00	.87
		61	.00	.36	.00	.00	.00	-1.07
59	1	61	.00	-.14	.00	.00	.00	1.07
		62	.00	.14	.00	.00	.00	-1.15
60	1	62	.00	2.06	.00	.00	.00	1.15
		63	.00	-2.06	.00	.00	.00	.00

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
61	1	64	.00	26.64	.00	.00	.00	27.43
		65	.00	-26.64	.00	.00	.00	-12.51
62	1	65	.00	15.59	.00	.00	.00	12.51
		66	.00	-15.59	.00	.00	.00	-3.78
63	1	66	.00	7.44	.00	.00	.00	3.78
		67	.00	-7.44	.00	.00	.00	.39
64	1	67	.00	2.74	.00	.00	.00	-.39
		68	.00	-2.74	.00	.00	.00	1.92
65	1	68	.00	.56	.00	.00	.00	-1.92
		69	.00	-.56	.00	.00	.00	2.24
66	1	69	.00	-.24	.00	.00	.00	-2.24
		70	.00	.24	.00	.00	.00	2.10
67	1	70	.00	-.45	.00	.00	.00	-2.11
		71	.00	.45	.00	.00	.00	1.85
68	1	71	.00	-.60	.00	.00	.00	-1.85
		72	.00	.60	.00	.00	.00	1.52
69	1	72	.00	-.08	.00	.00	.00	-1.52
		73	.00	.08	.00	.00	.00	1.48
70	1	73	.00	.65	.00	.00	.00	-1.48
		74	.00	-.65	.00	.00	.00	1.84
71	1	74	.00	.45	.00	.00	.00	-1.84
		75	.00	-.45	.00	.00	.00	2.09
72	1	75	.00	-.79	.00	.00	.00	-2.09
		76	.00	.79	.00	.00	.00	1.65
73	1	76	.00	-1.15	.00	.00	.00	-1.65
		77	.00	1.15	.00	.00	.00	1.01
74	1	77	.00	-2.99	.00	.00	.00	-1.01
		78	.00	2.99	.00	.00	.00	-.67
75	1	78	.00	-1.17	.00	.00	.00	.67
		79	.00	1.17	.00	.00	.00	-1.32
76	1	79	.00	-.95	.00	.00	.00	1.32
		80	.00	.95	.00	.00	.00	-1.86
77	1	80	.00	-2.49	.00	.00	.00	1.86
		81	.00	2.49	.00	.00	.00	-3.25
78	1	81	.00	3.32	.00	.00	.00	3.25
		82	.00	-3.32	.00	.00	.00	-1.39
79	1	82	.00	2.48	.00	.00	.00	1.39
		83	.00	-2.48	.00	.00	.00	.00
81	1	85	.00	27.23	.00	.00	.00	30.57
		86	.00	-27.23	.00	.00	.00	-15.33
82	1	86	.00	17.72	.00	.00	.00	15.33
		87	.00	-17.72	.00	.00	.00	-5.40
83	1	87	.00	9.98	.00	.00	.00	5.40
		88	.00	-9.98	.00	.00	.00	.18
84	1	88	.00	4.42	.00	.00	.00	-.18
		89	.00	-4.42	.00	.00	.00	2.66

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
85	1	89	.00	1.26	.00	.00	.00	-2.66
		90	.00	-1.26	.00	.00	.00	3.37
86	1	90	.00	-.15	.00	.00	.00	-3.37
		91	.00	.15	.00	.00	.00	3.28
87	1	91	.00	-.07	.00	.00	.00	-3.28
		92	.00	.07	.00	.00	.00	3.25
88	1	92	.00	-.16	.00	.00	.00	-3.25
		93	.00	.16	.00	.00	.00	3.16
89	1	93	.00	-.78	.00	.00	.00	-3.16
		94	.00	.78	.00	.00	.00	2.72
90	1	94	.00	1.07	.00	.00	.00	-2.72
		95	.00	-1.07	.00	.00	.00	3.32
91	1	95	.00	.44	.00	.00	.00	-3.32
		96	.00	-.44	.00	.00	.00	3.57
92	1	96	.00	-2.27	.00	.00	.00	-3.57
		97	.00	2.27	.00	.00	.00	2.30
93	1	97	.00	-1.47	.00	.00	.00	-2.30
		98	.00	1.47	.00	.00	.00	1.47
94	1	98	.00	-3.45	.00	.00	.00	-1.47
		99	.00	3.45	.00	.00	.00	-.46
95	1	99	.00	-2.89	.00	.00	.00	.46
		100	.00	2.89	.00	.00	.00	-2.08
96	1	100	.00	.62	.00	.00	.00	2.08
		101	.00	-.62	.00	.00	.00	-1.73
97	1	101	.00	3.08	.00	.00	.00	1.73
		102	.00	-3.08	.00	.00	.00	.00
101	1	106	.00	25.89	.00	.00	.00	31.66
		107	.00	-25.89	.00	.00	.00	-17.17
102	1	107	.00	17.79	.00	.00	.00	17.17
		108	.00	-17.79	.00	.00	.00	-7.20
103	1	108	.00	11.20	.00	.00	.00	7.21
		109	.00	-11.20	.00	.00	.00	-.93
104	1	109	.00	5.79	.00	.00	.00	.93
		110	.00	-5.79	.00	.00	.00	2.31
105	1	110	.00	2.31	.00	.00	.00	-2.31
		111	.00	-2.31	.00	.00	.00	3.61
106	1	111	.00	.54	.00	.00	.00	-3.61
		112	.00	-.54	.00	.00	.00	3.91
107	1	112	.00	.44	.00	.00	.00	-3.91
		113	.00	-.44	.00	.00	.00	4.16
108	1	113	.00	2.42	.00	.00	.00	-4.16
		114	.00	-2.42	.00	.00	.00	5.51
109	1	114	.00	-1.12	.00	.00	.00	-5.51
		115	.00	1.12	.00	.00	.00	4.89
110	1	115	.00	.72	.00	.00	.00	-4.89
		116	.00	-.72	.00	.00	.00	5.29

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
111	1	116	.00	-1.91	.00	.00	.00	-5.29
		117	.00	1.91	.00	.00	.00	4.23
112	1	117	.00	.87	.00	.00	.00	-4.23
		118	.00	-.87	.00	.00	.00	4.71
113	1	118	.00	-6.07	.00	.00	.00	-4.71
		119	.00	6.07	.00	.00	.00	1.31
114	1	119	.00	-2.35	.00	.00	.00	-1.31
		120	.00	2.35	.00	.00	.00	.00
121	1	127	.00	23.09	.00	.00	.00	30.88
		128	.00	-23.09	.00	.00	.00	-17.95
122	1	128	.00	16.14	.00	.00	.00	17.96
		129	.00	-16.14	.00	.00	.00	-8.92
123	1	129	.00	10.62	.00	.00	.00	8.92
		130	.00	-10.62	.00	.00	.00	-2.97
124	1	130	.00	6.90	.00	.00	.00	2.97
		131	.00	-6.90	.00	.00	.00	.90
125	1	131	.00	2.95	.00	.00	.00	-.90
		132	.00	-2.95	.00	.00	.00	2.55
126	1	132	.00	2.96	.00	.00	.00	-2.55
		133	.00	-2.96	.00	.00	.00	4.20
127	1	133	.00	.93	.00	.00	.00	-4.20
		134	.00	-.93	.00	.00	.00	4.72
128	1	134	.00	3.44	.00	.00	.00	-4.72
		135	.00	-3.44	.00	.00	.00	6.65
129	1	135	.00	8.27	.00	.00	.00	-6.65
		136	.00	-8.27	.00	.00	.00	11.28
130	1	136	.00	-8.14	.00	.00	.00	-11.29
		137	.00	8.14	.00	.00	.00	6.73
131	1	137	.00	-6.06	.00	.00	.00	-6.73
		138	.00	6.06	.00	.00	.00	3.33
132	1	138	.00	-5.96	.00	.00	.00	-3.34
		139	.00	5.96	.00	.00	.00	.00
141	1	148	.00	18.31	.00	.00	.00	28.30
		149	.00	-18.31	.00	.00	.00	-18.05
142	1	149	.00	14.16	.00	.00	.00	18.05
		150	.00	-14.16	.00	.00	.00	-10.11
143	1	150	.00	7.13	.00	.00	.00	10.12
		151	.00	-7.13	.00	.00	.00	-6.12
144	1	151	.00	7.92	.00	.00	.00	6.12
		152	.00	-7.92	.00	.00	.00	-1.69
145	1	152	.00	3.44	.00	.00	.00	1.69
		153	.00	-3.44	.00	.00	.00	.24
146	1	153	.00	5.89	.00	.00	.00	-.24
		154	.00	-5.89	.00	.00	.00	3.54
147	1	154	.00	7.78	.00	-.01	.00	-3.54
		155	.00	-7.78	.00	.01	.00	7.89

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
148	1	155	.00	-4.60	.00	.00	.00	-7.90
		156	.00	4.60	.00	.00	.00	5.32
149	1	156	.00	-9.48	.00	.00	.00	-5.32
		157	.00	9.48	.00	.00	.00	.01
161	1	169	.00	9.87	.00	.00	.00	23.55
		170	.00	-9.87	.00	.00	.00	-18.02
162	1	170	.00	12.16	.00	.00	.00	18.02
		171	.00	-12.16	.00	.00	.00	-11.21
163	1	171	.00	4.39	.00	.00	.00	11.21
		172	.00	-4.39	.00	.00	.00	-8.75
164	1	172	.00	.87	.00	.00	.00	8.75
		173	.00	-.87	.00	.00	.00	-8.26
165	1	173	.00	13.91	.00	.00	.00	8.27
		174	.00	-13.91	.00	.00	.00	-.48
166	1	174	.00	3.99	.00	.00	.00	.48
		175	.00	-3.99	.00	.00	.00	1.75
167	1	175	.00	-3.11	.00	-.01	.00	-1.75
		176	.00	3.11	.00	.01	.00	.01
181	1	190	.00	4.78	.00	.00	.00	17.97
		191	.00	-4.78	.00	.00	.00	-15.30
182	1	191	.00	-4.40	.00	.00	.00	15.30
		192	.00	4.40	.00	.00	.00	-17.76
183	1	192	.00	17.97	.00	.00	.00	17.77
		193	.00	-17.97	.00	.00	.00	-7.70
184	1	193	.00	13.75	.00	.00	.00	7.70
		194	.00	-13.75	.00	.00	.00	.00
191	1	211	.00	12.34	.00	.00	.00	15.43
		212	.00	-12.34	.00	.00	.00	-8.52
192	1	212	.00	15.20	.00	.01	.00	8.52
		213	.00	-15.20	.00	-.01	.00	-.01
201	1	2	.00	7.51	.00	.00	.00	5.21
		23	.00	-7.51	.00	.00	.00	-1.50
202	1	23	.00	4.21	.00	.00	.00	1.50
		44	.00	-4.21	.00	.00	.00	.58
203	1	44	.00	1.39	.00	.00	.00	-.58
		65	.00	-1.39	.00	.00	.00	1.26
204	1	65	.00	.16	.00	.00	.00	-1.26
		86	.00	-.16	.00	.00	.00	1.34
205	1	86	.00	-.23	.00	.00	.00	-1.35
		107	.00	.23	.00	.00	.00	1.23
206	1	107	.00	-.26	.00	.00	.00	-1.23
		128	.00	.26	.00	.00	.00	1.10
207	1	128	.00	.32	.00	.00	.00	-1.10
		149	.00	-.32	.00	.00	.00	1.26
208	1	149	.00	-.14	.00	.00	.00	-1.26
		170	.00	.14	.00	.00	.00	1.19

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
209	1	170	.00	-5.26	.00	.00	.00	-1.19
		191	.00	5.26	.00	.00	.00	-1.40
210	1	191	.00	2.86	.00	.00	.00	1.40
		212	.00	-2.86	.00	.00	.00	.00
211	1	3	.00	26.56	.00	.00	.00	17.70
		24	.00	-26.56	.00	.00	.00	-4.61
212	1	24	.00	12.05	.00	.00	.00	4.61
		45	.00	-12.05	.00	.00	.00	1.33
213	1	45	.00	4.57	.00	.00	.00	-1.33
		66	.00	-4.57	.00	.00	.00	3.58
214	1	66	.00	1.16	.00	.00	.00	-3.58
		87	.00	-1.16	.00	.00	.00	4.15
215	1	87	.00	-.28	.00	.00	.00	-4.16
		108	.00	.28	.00	.00	.00	4.01
216	1	108	.00	-1.13	.00	.00	.00	-4.02
		129	.00	1.13	.00	.00	.00	3.46
217	1	129	.00	-1.27	.00	.00	.00	-3.46
		150	.00	1.27	.00	.00	.00	2.84
218	1	150	.00	1.87	.00	.00	.00	-2.84
		171	.00	-1.87	.00	.00	.00	3.76
219	1	171	.00	7.52	.00	.00	.00	-3.76
		192	.00	-7.52	.00	.00	.00	7.47
220	1	192	.00	-15.20	.00	-.01	.00	-7.47
		213	.00	15.20	.00	.01	.00	-.01
221	1	4	.00	36.94	.00	.00	.00	27.61
		25	.00	-36.94	.00	.00	.00	-9.39
222	1	25	.00	20.48	.00	.00	.00	9.39
		46	.00	-20.48	.00	.00	.00	.70
223	1	46	.00	9.27	.00	.00	.00	-.70
		67	.00	-9.27	.00	.00	.00	5.27
224	1	67	.00	3.13	.00	.00	.00	-5.27
		88	.00	-3.13	.00	.00	.00	6.80
225	1	88	.00	.19	.00	.00	.00	-6.80
		109	.00	-.19	.00	.00	.00	6.90
226	1	109	.00	-1.12	.00	.00	.00	-6.90
		130	.00	1.12	.00	.00	.00	6.35
227	1	130	.00	-2.35	.00	.00	.00	-6.35
		151	.00	2.35	.00	.00	.00	5.19
228	1	151	.00	-6.33	.00	.00	.00	-5.19
		172	.00	6.33	.00	.00	.00	2.08
229	1	172	.00	-4.21	.00	.00	.00	-2.08
		193	.00	4.21	.00	.00	.00	.00
231	1	5	.00	41.76	.00	.00	.00	34.28
		26	.00	-41.76	.00	.00	.00	-13.69
232	1	26	.00	25.68	.00	.00	.00	13.69
		47	.00	-25.68	.00	.00	.00	-1.03

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
233	1	47	.00	13.39	.00	.00	.00	1.04
		68	.00	-13.39	.00	.00	.00	5.55
234	1	68	.00	5.42	.00	.00	.00	-5.55
		89	.00	-5.42	.00	.00	.00	8.22
235	1	89	.00	.80	.00	.00	.00	-8.22
		110	.00	-.80	.00	.00	.00	8.62
236	1	110	.00	-1.73	.00	.00	.00	-8.62
		131	.00	1.73	.00	.00	.00	7.77
237	1	131	.00	-2.01	.00	.00	.00	-7.77
		152	.00	2.01	.00	.00	.00	6.78
238	1	152	.00	-.01	.00	.00	.00	-6.78
		173	.00	.01	.00	.00	.00	6.78
239	1	173	.00	-13.75	.00	.00	.00	-6.78
		194	.00	13.75	.00	.00	.00	.00
241	1	6	.00	43.25	.00	.00	.00	38.14
		27	.00	-43.25	.00	.00	.00	-16.82
242	1	27	.00	27.82	.00	.00	.00	16.82
		48	.00	-27.82	.00	.00	.00	-3.10
243	1	48	.00	15.67	.00	.00	.00	3.10
		69	.00	-15.67	.00	.00	.00	4.61
244	1	69	.00	7.03	.00	.00	.00	-4.61
		90	.00	-7.03	.00	.00	.00	8.07
245	1	90	.00	1.38	.00	.00	.00	-8.07
		111	.00	-1.38	.00	.00	.00	8.75
246	1	111	.00	-2.15	.00	.00	.00	-8.75
		132	.00	2.15	.00	.00	.00	7.69
247	1	132	.00	-5.70	.00	.00	.00	-7.69
		153	.00	5.70	.00	.00	.00	4.88
248	1	153	.00	-9.92	.00	.00	.00	-4.88
		174	.00	9.92	.00	.00	.00	.00
251	1	7	.00	42.50	.00	.00	.00	39.69
		28	.00	-42.50	.00	.00	.00	-18.74
252	1	28	.00	27.74	.00	.00	.00	18.74
		49	.00	-27.74	.00	.00	.00	-5.07
253	1	49	.00	16.13	.00	.00	.00	5.07
		70	.00	-16.13	.00	.00	.00	2.87
254	1	70	.00	7.61	.00	.00	.00	-2.87
		91	.00	-7.61	.00	.00	.00	6.61
255	1	91	.00	1.16	.00	.00	.00	-6.61
		112	.00	-1.16	.00	.00	.00	7.18
256	1	112	.00	-3.35	.00	.00	.00	-7.18
		133	.00	3.35	.00	.00	.00	5.53
257	1	133	.00	-4.15	.00	.00	.00	-5.53
		154	.00	4.15	.00	.00	.00	3.49
258	1	154	.00	-7.09	.00	.00	.00	-3.49
		175	.00	7.09	.00	.00	.00	.00

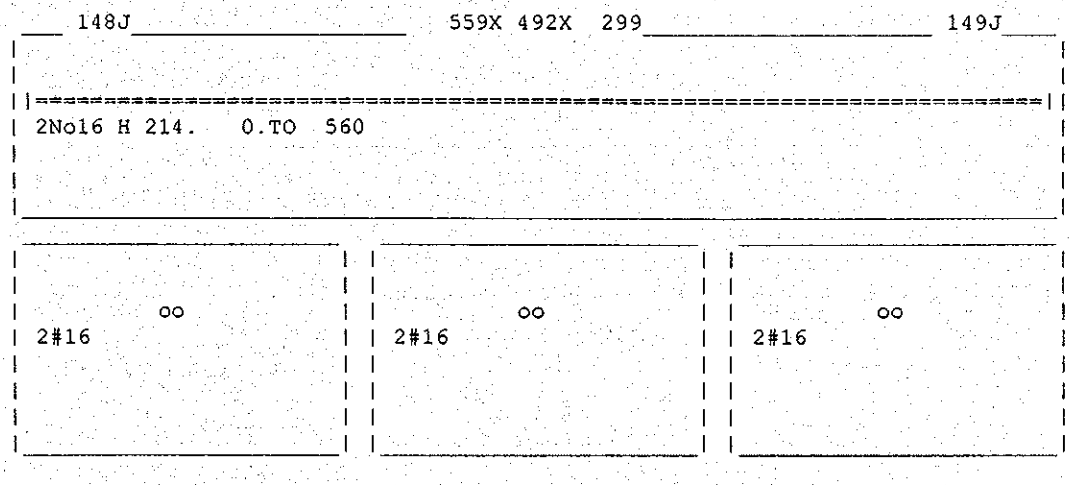
MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
261	1	8	.00	40.33	.00	.00	.00	39.49
		29	.00	-40.33	.00	.00	.00	-19.61
262	1	29	.00	26.16	.00	.00	.00	19.61
		50	.00	-26.16	.00	.00	.00	-6.71
263	1	50	.00	15.02	.00	.00	.00	6.71
		71	.00	-15.02	.00	.00	.00	.68
264	1	71	.00	7.16	.00	.00	.00	-.68
		92	.00	-7.16	.00	.00	.00	4.20
265	1	92	.00	1.58	.00	.00	.00	-4.20
		113	.00	-1.58	.00	.00	.00	4.98
266	1	113	.00	-4.28	.00	.00	.00	-4.98
		134	.00	4.28	.00	.00	.00	2.88
267	1	134	.00	-8.91	.00	.00	.00	-2.87
		155	.00	8.91	.00	.00	.00	-1.52
268	1	155	.00	3.11	.00	.01	.00	1.52
		176	.00	-3.11	.00	-.01	.00	.01
271	1	9	.00	37.44	.00	.00	.00	38.08
		30	.00	-37.44	.00	.00	.00	-19.62
272	1	30	.00	23.92	.00	.00	.00	19.62
		51	.00	-23.92	.00	.00	.00	-7.83
273	1	51	.00	13.16	.00	.00	.00	7.83
		72	.00	-13.16	.00	.00	.00	-1.36
274	1	72	.00	5.31	.00	.00	.00	1.36
		93	.00	-5.31	.00	.00	.00	1.26
275	1	93	.00	.99	.00	.00	.00	-1.25
		114	.00	-.99	.00	.00	.00	1.75
276	1	114	.00	1.35	.00	.00	.00	-1.74
		135	.00	-1.35	.00	.00	.00	2.41
277	1	135	.00	-4.89	.00	.00	.00	-2.41
		156	.00	4.89	.00	.00	.00	.00
281	1	10	.00	34.22	.00	.00	.00	35.85
		31	.00	-34.22	.00	.00	.00	-18.99
282	1	31	.00	21.45	.00	.00	.00	18.99
		52	.00	-21.45	.00	.00	.00	-8.41
283	1	52	.00	11.54	.00	.00	.00	8.41
		73	.00	-11.54	.00	.00	.00	-2.73
284	1	73	.00	4.20	.00	.00	.00	2.74
		94	.00	-4.20	.00	.00	.00	-.67
285	1	94	.00	-1.90	.00	.00	.00	.67
		115	.00	1.90	.00	.00	.00	-1.61
286	1	115	.00	-6.22	.00	.00	.00	1.61
		136	.00	6.22	.00	.00	.00	-4.67
287	1	136	.00	9.48	.00	.01	.00	4.67
		157	.00	-9.48	.00	-.01	.00	.00
291	1	11	.00	30.88	.00	.00	.00	32.98
		32	.00	-30.88	.00	.00	.00	-17.75

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
292	1	32	.00	18.81	.00	.00	.00	17.75
		53	.00	-18.81	.00	.00	.00	-8.48
293	1	53	.00	9.82	.00	.00	.00	8.48
		74	.00	-9.82	.00	.00	.00	-3.65
294	1	74	.00	4.13	.00	.00	.00	3.65
		95	.00	-4.13	.00	.00	.00	-1.62
295	1	95	.00	1.22	.00	.00	.00	1.62
		116	.00	-1.22	.00	.00	.00	-1.02
296	1	116	.00	2.08	.00	.00	.00	1.02
		137	.00	-2.08	.00	.00	.00	.00
301	1	12	.00	27.54	.00	.00	.00	29.46
		33	.00	-27.54	.00	.00	.00	-15.89
302	1	33	.00	16.12	.00	.00	.00	15.89
		54	.00	-16.12	.00	.00	.00	-7.94
303	1	54	.00	8.02	.00	.00	.00	7.94
		75	.00	-8.02	.00	.00	.00	-3.99
304	1	75	.00	4.06	.00	.00	.00	4.00
		96	.00	-4.06	.00	.00	.00	-2.00
305	1	96	.00	3.95	.00	.00	.00	2.00
		117	.00	-3.95	.00	.00	.00	-.05
306	1	117	.00	.11	.00	.00	.00	.05
		138	.00	-.11	.00	.00	.00	.00
311	1	13	.00	23.72	.00	.00	.00	25.12
		34	.00	-23.72	.00	.00	.00	-13.43
312	1	34	.00	13.26	.00	.00	.00	13.43
		55	.00	-13.26	.00	.00	.00	-6.89
313	1	55	.00	6.41	.00	.00	.00	6.89
		76	.00	-6.41	.00	.00	.00	-3.74
314	1	76	.00	2.28	.00	.00	.00	3.74
		97	.00	-2.28	.00	.00	.00	-2.61
315	1	97	.00	-.64	.00	.00	.00	2.62
		118	.00	.64	.00	.00	.00	-2.93
316	1	118	.00	5.96	.00	.00	.00	2.93
		139	.00	-5.96	.00	.00	.00	.00
321	1	14	.00	17.78	.00	.00	.00	19.49
		35	.00	-17.78	.00	.00	.00	-10.73
322	1	35	.00	9.80	.00	.00	.00	10.73
		56	.00	-9.80	.00	.00	.00	-5.90
323	1	56	.00	5.10	.00	.00	.00	5.90
		77	.00	-5.10	.00	.00	.00	-3.39
324	1	77	.00	3.15	.00	.00	.00	3.39
		98	.00	-3.15	.00	.00	.00	-1.84
325	1	98	.00	3.72	.00	.00	.00	1.84
		119	.00	-3.72	.00	.00	.00	.00
331	1	15	.00	8.81	.00	.00	.00	12.66
		36	.00	-8.81	.00	.00	.00	-8.32

MEMBER	LOAD	JT	AXIAL	SHEAR-Y	SHEAR-Z	TORSION	MOM-Y	MOM-Z
332	1	36	.00	6.89	.00	.00	.00	8.32
		57	.00	-6.89	.00	.00	.00	-4.92
333	1	57	.00	4.72	.00	.00	.00	4.92
		78	.00	-4.72	.00	.00	.00	-2.60
334	1	78	.00	2.91	.00	.00	.00	2.60
		99	.00	-2.91	.00	.00	.00	-1.16
335	1	99	.00	2.35	.00	.00	.00	1.16
		120	.00	-2.35	.00	.00	.00	.00
341	1	16	.00	3.91	.00	.00	.00	7.38
		37	.00	-3.91	.00	.00	.00	-5.45
342	1	37	.00	3.82	.00	.00	.00	5.45
		58	.00	-3.82	.00	.00	.00	-3.57
343	1	58	.00	3.73	.00	.00	.00	3.57
		79	.00	-3.73	.00	.00	.00	-1.73
344	1	79	.00	3.51	.00	.00	.00	1.73
		100	.00	-3.51	.00	.00	.00	.00
351	1	17	.00	2.17	.00	.00	.00	3.74
		38	.00	-2.17	.00	.00	.00	-2.67
352	1	38	.00	2.05	.00	.00	.00	2.67
		59	.00	-2.05	.00	.00	.00	-1.66
353	1	59	.00	.93	.00	.00	.00	1.66
		80	.00	-.93	.00	.00	.00	-1.21
361	1	18	.00	1.07	.00	.00	.00	1.19
		39	.00	-1.07	.00	.00	.00	-.67
362	1	39	.00	1.69	.00	.00	.00	.67
		60	.00	-1.69	.00	.00	.00	.17
363	1	60	.00	2.73	.00	.00	.00	-.17
		81	.00	-2.73	.00	.00	.00	1.51
364	1	81	.00	-3.08	.00	.00	.00	-1.51
		102	.00	3.08	.00	.00	.00	.00
371	1	19	.00	.09	.00	.00	.00	-.67
		40	.00	-.09	.00	.00	.00	.72
372	1	40	.00	-.62	.00	.00	.00	-.72
		61	.00	.62	.00	.00	.00	.41
381	1	20	.00	-.42	.00	.00	.00	-1.57
		41	.00	.42	.00	.00	.00	1.36
382	1	41	.00	-.29	.00	.00	.00	-1.36
		62	.00	.29	.00	.00	.00	1.22
383	1	62	.00	-2.48	.00	.00	.00	-1.22
		83	.00	2.48	.00	.00	.00	.00
391	1	21	.00	-2.31	.00	.00	.00	-2.15
		42	.00	2.31	.00	.00	.00	1.01
392	1	42	.00	-2.06	.00	.00	.00	-1.01
		63	.00	2.06	.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 -   560. MM  FY -  414.  FC -  25.  MPA, SIZE -  493. X  300. MMS

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

  1        214.     2 - 16MM          0.          560.         YES  YES
 |-------------------------------------------------------------------|
 |   CRITICAL NEG MOMENT=     28.30 KN-MET  AT     0.MM, LOAD   1 |
 |   REQD STEEL=   367.MM2, ROW= .0035, ROWMX= .0194 ROWMN= .0033 |
 |   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS         |
 |   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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=   18.31 KNS  Vc=   85.80 KNS  Vs=     .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
 AT END   SUPPORT - Vu=   18.31 KNS  Vc=   85.80 KNS  Vs=     .00 KNS
                    STIRRUPS ARE NOT REQUIRED.
```

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

LEN -   560. MM  FY -  414.  FC -  25.  MPA, SIZE -  493. X  300. MMS

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

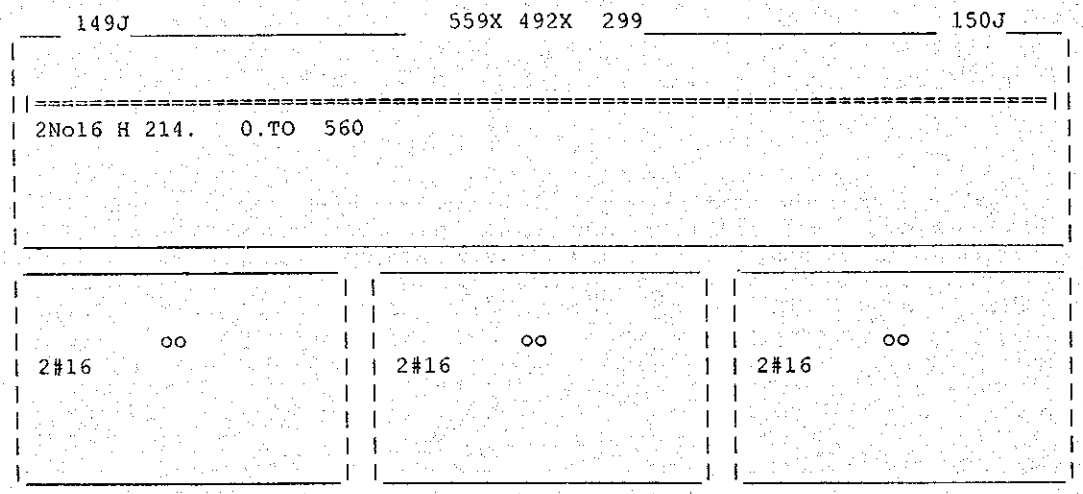
  1        214.     2 - 16MM          0.          560.         YES  YES
```


11-303

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     18.05 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS        |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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= 14.16 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 14.16 KNS Vc= 85.80 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

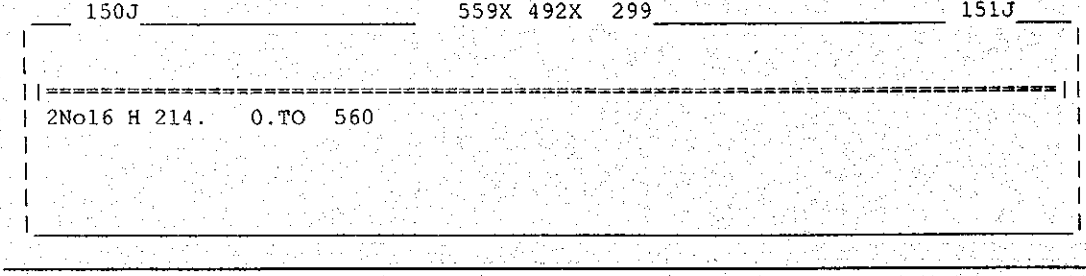
LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

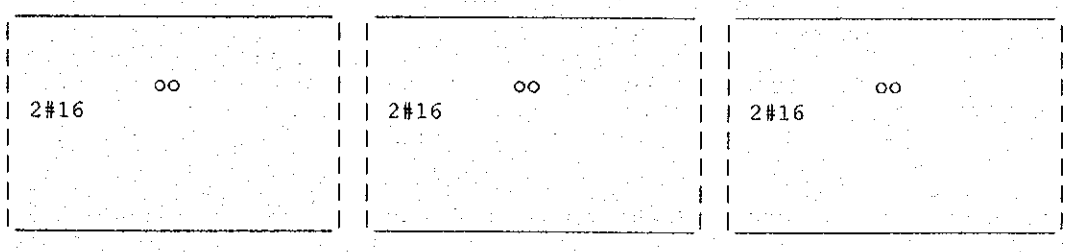
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     10.12 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS        |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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= 7.13 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 7.13 KNS Vc= 85.80 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

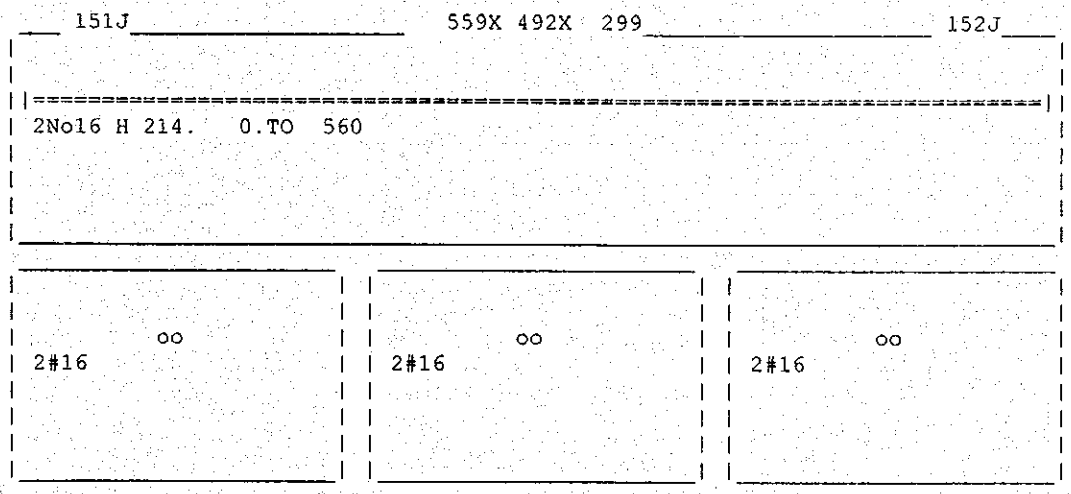
LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

CRITICAL NEG MOMENT= 6.12 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 375./ 41./ 375. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. 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= 7.92 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 7.92 KNS Vc= 85.80 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 - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

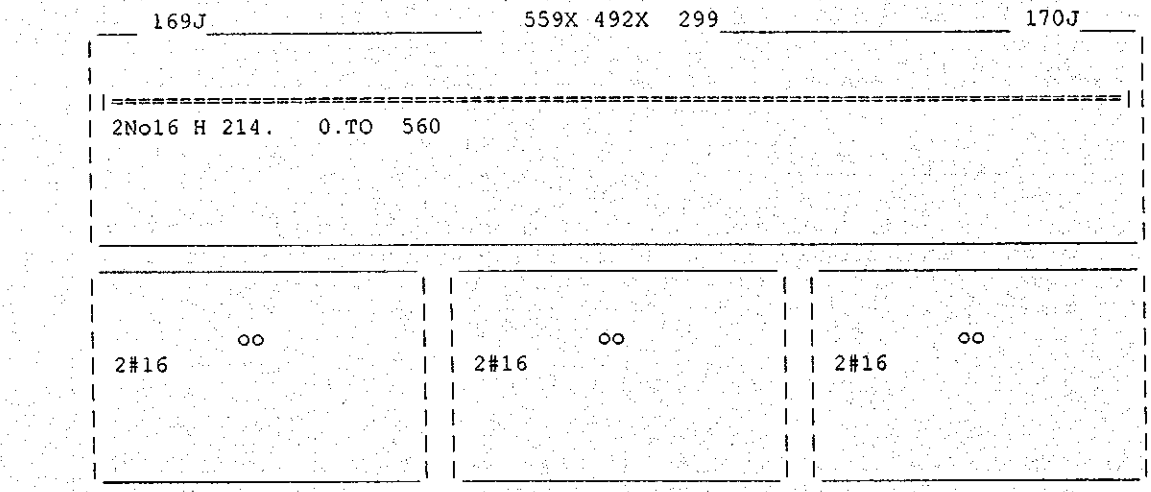
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

11-305

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     23.55 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS        |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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= 9.87 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 9.87 KNS Vc= 85.80 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

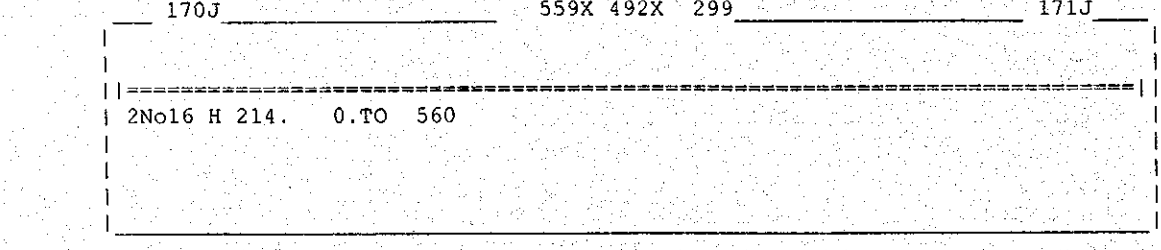
LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

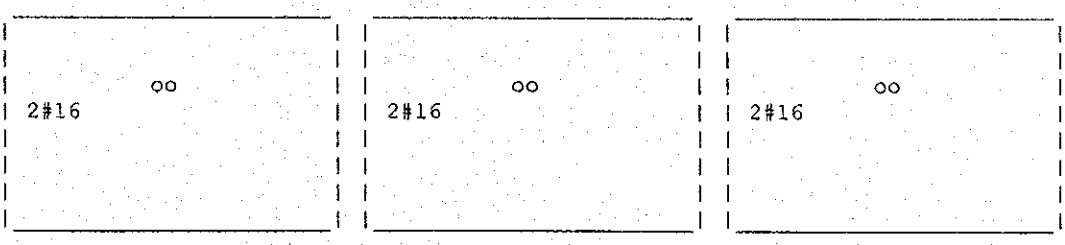
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

```
|-------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     18.02 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS        |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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= 12.16 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 12.16 KNS Vc= 85.80 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

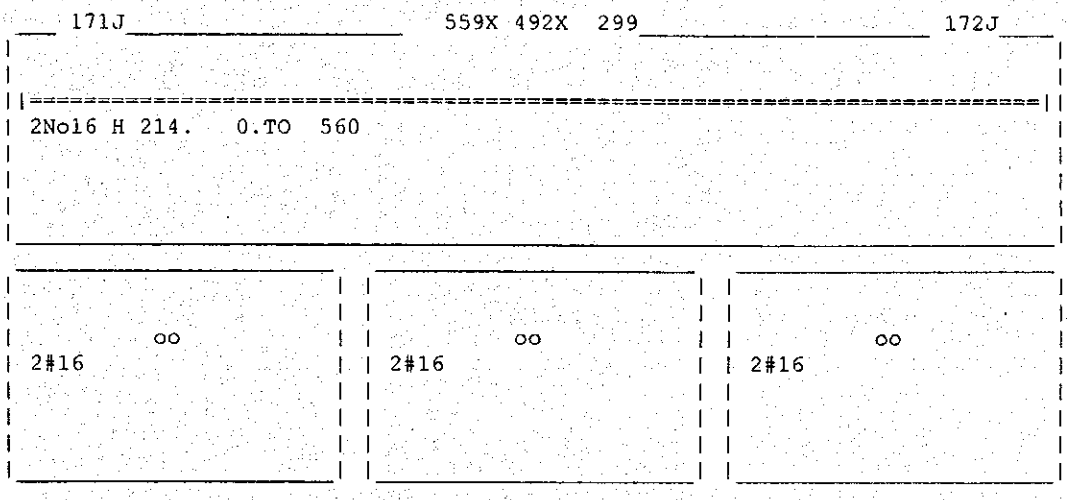
LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

CRITICAL NEG MOMENT= 11.21 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 375./ 41./ 375. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. 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= 4.39 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 4.39 KNS Vc= 85.80 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

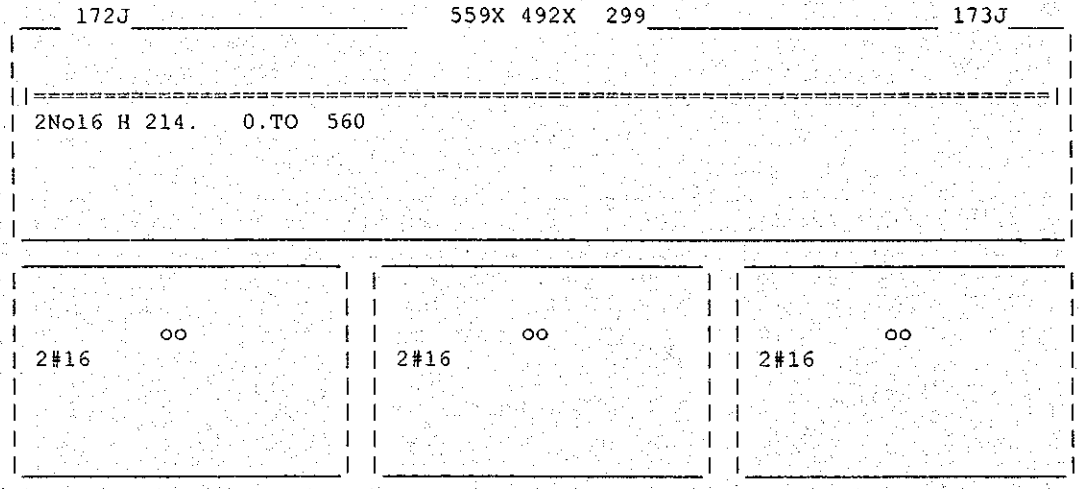
LEN - 560. MM FY - 414. FC - 25. MPA, SIZE - 493. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	560.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      8.75 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   352.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   375./   41./  375. MMS         |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. 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= .87 KNS Vc= 85.80 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= .87 KNS Vc= 85.80 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

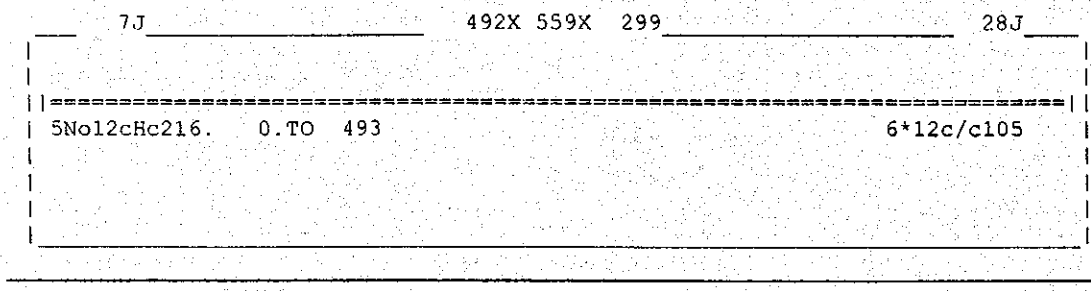
LEN - 493. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

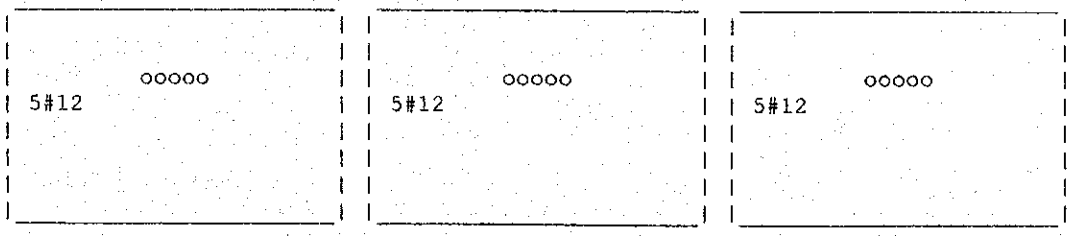
LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	216.	5 - 12MM	0.	493.	YES	YES

```
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=     39.69 KN-MET  AT     0.MM, LOAD   1 |
|   REQD STEEL=   514.MM2, ROW= .0042, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   446./   37./  112. 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= 42.50 KNS Vc= 97.46 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 105. MM C/C FOR 493. MM
AT END SUPPORT - Vu= 42.50 KNS Vc= 97.46 KNS Vs= .00 KNS
PROVIDE 12 MM BARS AT 105. MM C/C FOR 493. MM





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

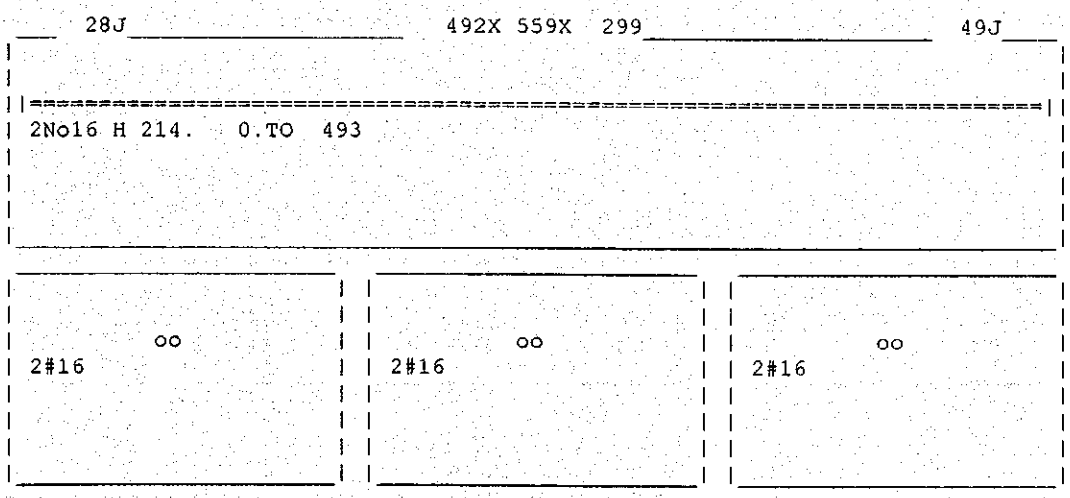
LEN - 493. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	493.	YES	YES

CRITICAL NEG MOMENT= 18.74 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 442./ 41./ 442. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. 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= 27.74 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 27.74 KNS Vc= 97.46 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 - 492. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	2 - 16MM	0.	492.	YES	YES

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|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      2.87 KN-MET  AT    492.MM, LOAD   1 |
|   REQD STEEL=   400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   442./   41./  442. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   476. MMS           |
|-------------------------------------------------------------------|

  2        214.     2 - 16MM          0.          492.        YES  YES
|-------------------------------------------------------------------|
|   CRITICAL NEG MOMENT=      5.07 KN-MET  AT      0.MM, LOAD   1 |
|   REQD STEEL=   400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   442./   41./  442. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   478. MMS           |
|-------------------------------------------------------------------|
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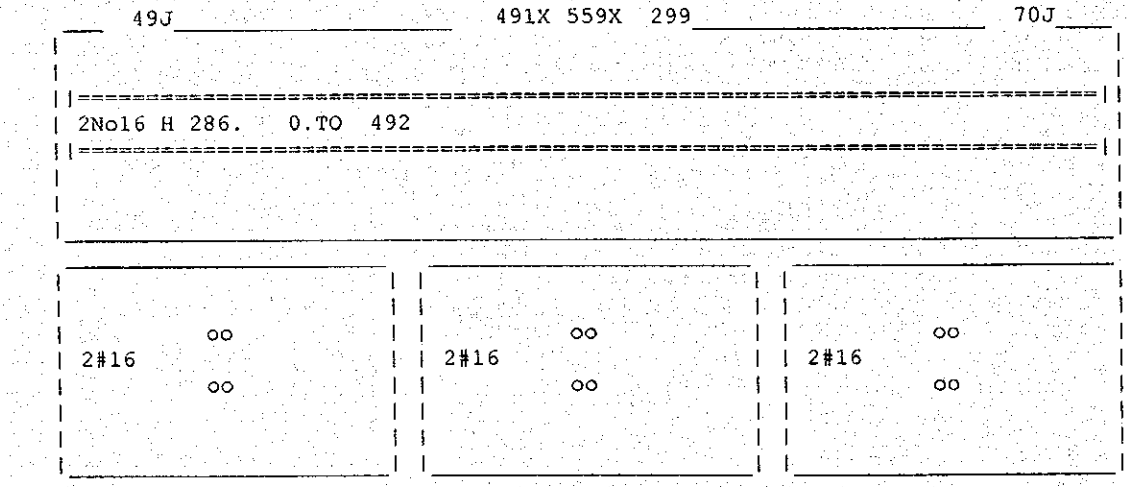
B E A M N O. 253 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 16.13 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 16.13 KNS Vc= 97.46 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 - 492. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	2 - 16MM	0.	492.	YES	YES

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|-------------------------------------------------------------------|
|   CRITICAL POS MOMENT=      6.61 KN-MET  AT    492.MM, LOAD   1 |
|   REQD STEEL=   400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033 |
|   MAX/MIN/ACTUAL BAR SPACING=   442./   41./  442. MMS          |
|   BASIC/REQD. DEVELOPMENT LENGTH =   316./   476. MMS           |
|-------------------------------------------------------------------|
```
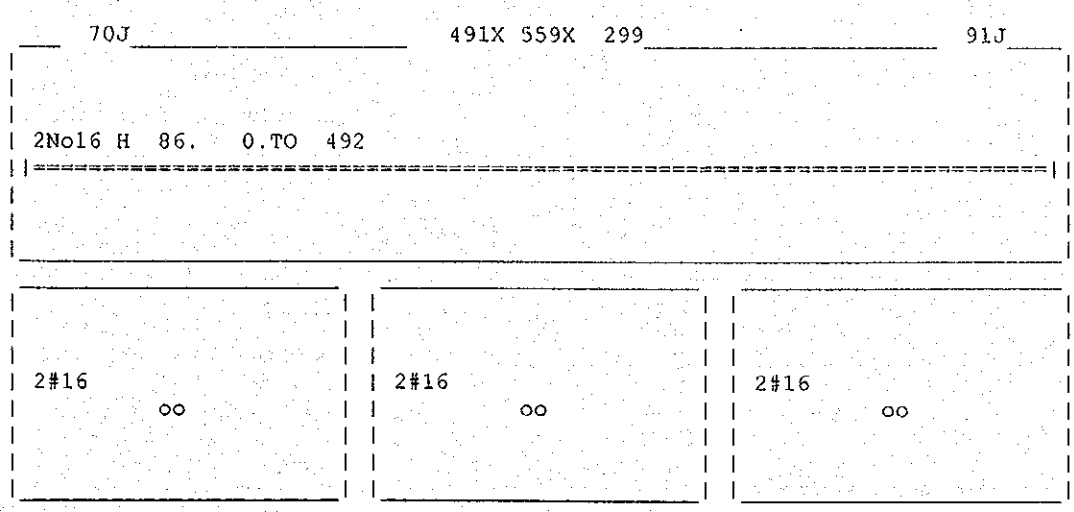

B E A M N O. 254 D E S I G N R E S U L T S - SHEAR

AT START SUPPORT - Vu= 7.61 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 7.61 KNS Vc= 97.46 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

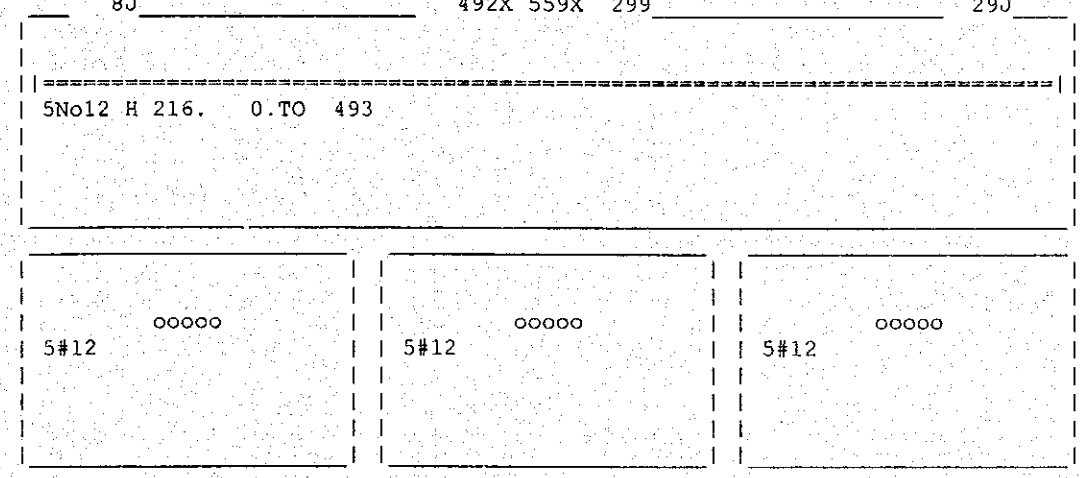
LEN - 493. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	216.	5 - 12MM	0.	493.	YES	YES

CRITICAL NEG MOMENT= 39.49 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 511.MM2, ROW= .0042, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 446./ 37./ 112. 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= 40.33 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 40.33 KNS Vc= 97.46 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

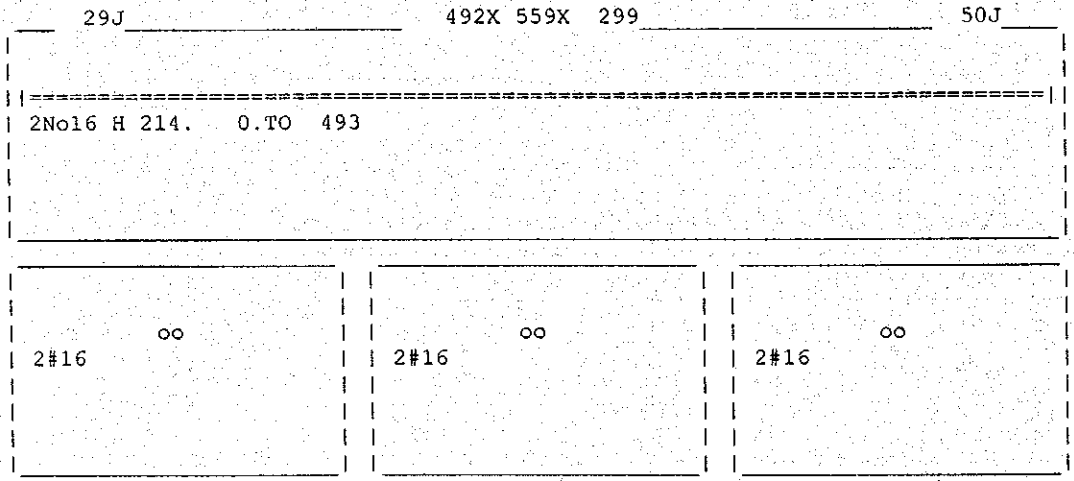
LEN - 493. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	214.	2 - 16MM	0.	493.	YES	YES

CRITICAL NEG MOMENT= 19.61 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 442./ 41./ 442. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. 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= 26.16 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 26.16 KNS Vc= 97.46 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 - 492. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	2 - 16MM	0.	492.	YES	YES

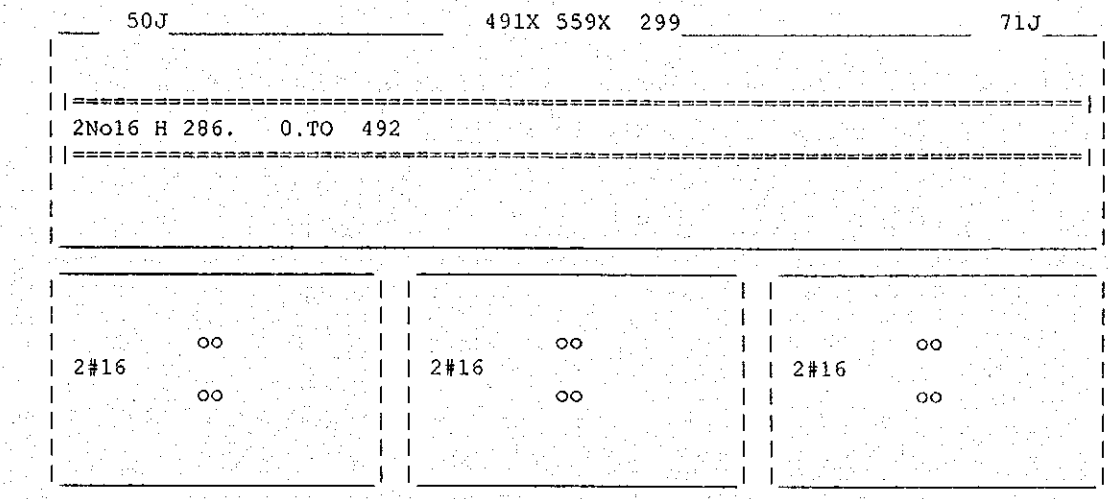
CRITICAL POS MOMENT= .68 KN-MET AT 492.MM, LOAD 1
REQD STEEL= 400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 442./ 41./ 442. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 476. MMS

2	214.	2 - 16MM	0.	492.	YES	YES

CRITICAL NEG MOMENT= 6.71 KN-MET AT 0.MM, LOAD 1
REQD STEEL= 400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 442./ 41./ 442. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 478. 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= 15.02 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 15.02 KNS Vc= 97.46 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

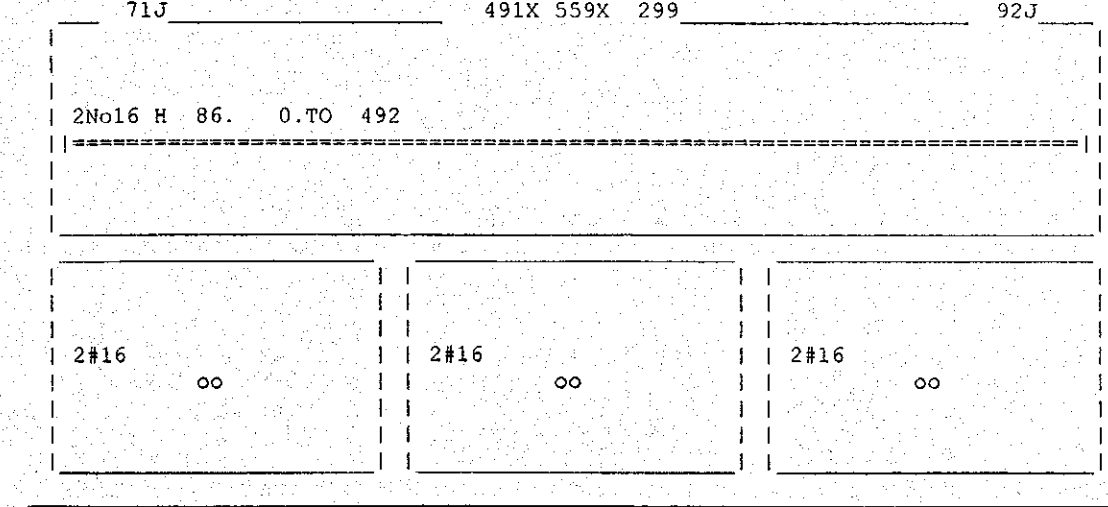
LEN - 492. MM FY - 414. FC - 25. MPA, SIZE - 560. X 300. MMS

LEVEL	HEIGHT (MM)	BAR INFO	FROM (MM)	TO (MM)	ANCHOR STA	ANCHOR END
1	86.	2 - 16MM	0.	492.	YES	YES

CRITICAL POS MOMENT= 4.20 KN-MET AT 492.MM, LOAD 1
REQD STEEL= 400.MM2, ROW= .0033, ROWMX= .0194 ROWMN= .0033
MAX/MIN/ACTUAL BAR SPACING= 442./ 41./ 442. MMS
BASIC/REQD. DEVELOPMENT LENGTH = 316./ 476. 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= 7.16 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.
AT END SUPPORT - Vu= 7.16 KNS Vc= 97.46 KNS Vs= .00 KNS
STIRRUPS ARE NOT REQUIRED.



11-3/3

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


246. END CON DESIGN
247. FINISH


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

            **** DATE= JAN 30,2000   TIME=  9:18: 7 ****

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       *        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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