

Water Tank Skid Base Analysis & Design

REV.	DESCRIPTION	DATE
DOCUMENT TITLE:		DESIGNED BY :
ANALYSIS & DESIGN CALCULATION		CHECKED BY :
		DATE: 20 NOV 2012
		DESIGN NO: -
		DESIGN CAL. NO: -
DESCRIPTION: 2m (H), 3m (H) & 4m (H) based on 1m plinth distance		
DESIGN & SUPPLY:		

2m (H) Tank Analysis

Main beam = C 100x50x9.36kg/m

Sub beam = EA 75x6

Max. Deflection = 1.0mm

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                 *
*          Proprietary Program of               *
*          Bentley Systems, Inc.                *
*          Date=    NOV 20, 2012                *
*          Time=                                       *
*
*          USER ID:                               *
*****
```

```
1. STAAD FLOOR
INPUT FILE: skidbase_4x4x2mH_Proposal_A_1m_plinth.STD
2. START JOB INFORMATION
3. ENGINEER DATE 20/9/2010
4. JOB NAME SKID BASE DESIGN
5. JOB CLIENT
6. JOB
7. JOB REV 0
8. JOB COMMENT PROPOSAL A
9. JOB COMMENT PLINTH DISTANCE 2 METER
10. JOB COMMENT PLINTH CLEAR DISTANCE 1.8 M
11. ENGINEER NAME
12. CHECKER NAME
13. END JOB INFORMATION
14. INPUT WIDTH 79
15. UNIT METER KN
16. JOINT COORDINATES
17. 1 0 0 0; 2 4 0 0; 3 2 0 0; 4 3 0 0; 5 4 0 0; 6 0 0 1; 7 1 0 1; 8 2 0 1
18. 9 3 0 1; 10 4 0 1; 11 0 0 2; 12 1 0 2; 13 2 0 2; 14 3 0 2; 15 4 0 2; 16 0 0 3
19. 17 1 0 3; 18 2 0 3; 19 3 0 3; 20 4 0 3; 21 0 0 4; 22 1 0 4; 23 2 0 4; 24 3 0 4
20. 25 4 0 4
21. MEMBER INCIDENCES
22. 1 2; 2 2; 3 4; 4 4 5; 5 6 7; 6 7 8; 7 8 9; 8 9 10; 9 11 12; 10 12 13
23. 12 13 14; 12 14 15; 13 16 17; 14 17 18; 15 18 19; 16 19 20; 17 21 22; 18 22 23
24. 19 23 24; 20 24 25; 21 1 6; 22 6 11; 23 11 16; 24 16 21; 25 2 7; 26 7 12
25. 27 12 17; 28 17 22; 29 3 8; 30 8 13; 31 13 18; 32 18 23; 33 4 9; 34 9 14
26. 35 14 19; 36 19 24; 37 5 10; 38 10 15; 39 15 20; 40 20 25
27. DEFINE MEMBER
28. 1 TO 4 PMEMBER 1
29. 5 TO 8 PMEMBER 2
30. 9 TO 12 PMEMBER 3
31. 13 TO 16 PMEMBER 4
32. 17 TO 20 PMEMBER 5
33. START USER TABLE
34. END
35. START GROUP DEFINITION
36. MEMBER
37. _MAIN_ 1 TO 20
38. _SUB_ 21 TO 40
39. END GROUP DEFINITION
40. DEFINE MATERIAL START
STAAD FLOOR
41. ISOTROPIC STEEL
42. E 2.05E+008
43. POISSON 0.3
44. DENSITY 76.8195
-- PAGE NO. 2
```

45. ALPHA 1.2E-005
 46. DAMP 0.03
 47. END DEFINE MATERIAL
 48. MEMBER PROPERTY JAPANESE
 49. 1 TO 20 TABLE ST C100X50X5
 50. 21 TO 40 TABLE ST L75X75X6
 51. CONSTANTS
 52. BETA 45 MEMB 21 TO 40
 53. MATERIAL STEEL ALL
 54. SUPPORTS
 55. 1 TO 25 PINNED
 56. LOAD 1 LOADTYPE NONE TITLE DEAD LOAD
 57. SELFWEIGHT Y -1
 58. FLOOR LOAD
 59. YRANGE 0 0 FLOAD -0.2607 XRANGE 0 4 ZRANGE 0 4 GY
 WARNING about Floor/OneWay Loads/Weights.
 Please note that depending on the shape of the floor you may
 have to break up the FLOOR/ONEWAY LOAD into multiple commands.
 For details please refer to Technical Reference Manual
 Section 5.32.4 Note 6.

60. MEMBER LOAD
 61. 1 TO 4 17 TO 24 37 TO 40 UNI GY -0.5636
 62. JOINT LOAD
 63. 7 TO 9 12 TO 14 17 TO 19 FY -0.0806
 64. LOAD 2 LOADTYPE NONE TITLE LIVE LOAD
 65. FLOOR LOAD
 66. YRANGE 0 0 FLOAD -16.677 XRANGE 0 4 ZRANGE 0 4 GY
 67. LOAD COMB 100 1.0DL + 1.0LL (SERVICE)
 68. 1 1.0 2 1.0
 69. LOAD COMB 200 1.4DL + 1.4LL (ULTIMATE)
 70. 1 1.4 2 1.4
 71. PERFORM ANALYSIS PRINT STATICS CHECK
 STAAD FLOOR -- PAGE NO. 3

PROBLEM STATISTICS

 NUMBER OF JOINTS/MEMBER/ELEMENTS/SUPPORTS = 25/ 40/ 25
 SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER
 ORIGINAL/FINAL BAND-WIDTH= 5/ 5/ 12 DOF
 TOTAL PRIMARY LOAD CASES = 2, TOTAL DEGREES OF FREEDOM = 50
 SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
 REQD/AVAIL. DESK SPACE = 12.1/1999563.8 MB

STAAD FLOOR -- PAGE NO. 4

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 1
 LOADTYPE NONE TITLE DEAD LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METER).
 (FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.1999999999E+01
 Y = 0.0000000000E+00
 Z = 0.1999999999E+01

***TOTAL APPLIED LOAD (KN METER) SUMMARY (LOADING 1)
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = -17.09
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= 34.17 MY= 0.00 MZ= -34.17

***TOTAL REACTION LOAD(KN METER) SUMMARY (LOADING 1)

SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = 17.09
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -34.17 MY= 0.00 MZ= 34.17

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 1)
MAXIMUMS AT NODE
X = 0.000000E+00 0
Y = 0.000000E+00 0
Z = 0.000000E+00 0
RX= 1.81920E-04 1
RY= 0.000000E+00 0
RZ= -4.82567E-05 1

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 2
LOADTYPE NONE TITLE LIVE LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.199999998E+01
Y = 0.000000000E+00
Z = 0.199999998E+01

STAAD FLOOR

-- PAGE NO. 5

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -266.83
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 533.66 MY= 0.00 MZ= -533.66

***TOTAL REACTION LOAD (KN METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = 266.83
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -533.66 MY= 0.00 MZ= 533.66

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 2)
MAXIMUMS AT NODE
X = 0.000000E+00 0
Y = 0.000000E+00 0
Z = 0.000000E+00 0
RX= -2.67461E-05 23
RY= 0.000000E+00 0
RZ= 6.84057E-04 15

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

72. LOAD LIST 100 200
73. PRINT JOINT DISPLACEMENTS
STAAD FLOOR

-- PAGE NO. 6

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

JOINT LOAD X-TRANS Y-TRANS Z-TRANS X-ROTAN Y-ROTAN Z-ROTAN
1 100 0.0000 0.0000 0.0000 0.0015 0.0000 -0.0004

200	0.0000	0.0000	0.0000	0.0021	0.0000	-0.0005
2 100	0.0000	0.0000	0.0000	0.0027	0.0000	0.0001
200	0.0000	0.0000	0.0000	0.0038	0.0000	0.0001
3 100	0.0000	0.0000	0.0000	0.0027	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0038	0.0000	0.0000
4 100	0.0000	0.0000	0.0000	0.0027	0.0000	-0.0001
200	0.0000	0.0000	0.0000	0.0038	0.0000	-0.0001
5 100	0.0000	0.0000	0.0000	0.0015	0.0000	0.0004
200	0.0000	0.0000	0.0000	0.0021	0.0000	0.0005
6 100	0.0000	0.0000	0.0000	-0.0004	0.0000	-0.0007
200	0.0000	0.0000	0.0000	-0.0005	0.0000	-0.0010
7 100	0.0000	0.0000	0.0000	-0.0006	0.0000	0.0002
200	0.0000	0.0000	0.0000	-0.0009	0.0000	0.0002
8 100	0.0000	0.0000	0.0000	-0.0007	0.0000	0.0000
200	0.0000	0.0000	0.0000	-0.0009	0.0000	0.0000
9 100	0.0000	0.0000	0.0000	-0.0006	0.0000	-0.0002
200	0.0000	0.0000	0.0000	-0.0009	0.0000	-0.0002
10 100	0.0000	0.0000	0.0000	-0.0004	0.0000	0.0007
200	0.0000	0.0000	0.0000	-0.0005	0.0000	0.0010
11 100	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0010
12 100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
13 100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14 100	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0002
200	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0002
15 100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010
16 100	0.0000	0.0000	0.0000	0.0004	0.0000	-0.0007
200	0.0000	0.0000	0.0000	0.0005	0.0000	-0.0010
17 100	0.0000	0.0000	0.0000	0.0006	0.0000	0.0002
200	0.0000	0.0000	0.0000	0.0009	0.0000	0.0002
18 100	0.0000	0.0000	0.0000	0.0007	0.0000	0.0000
200	0.0000	0.0000	0.0000	0.0009	0.0000	0.0000
19 100	0.0000	0.0000	0.0000	0.0006	0.0000	-0.0002
200	0.0000	0.0000	0.0000	0.0009	0.0000	-0.0002
20 100	0.0000	0.0000	0.0000	0.0004	0.0000	0.0007
200	0.0000	0.0000	0.0000	0.0005	0.0000	0.0010
21 100	0.0000	0.0000	0.0000	-0.0015	0.0000	-0.0004
200	0.0000	0.0000	0.0000	-0.0021	0.0000	-0.0005
22 100	0.0000	0.0000	0.0000	-0.0027	0.0000	0.0001
200	0.0000	0.0000	0.0000	-0.0038	0.0000	0.0001
23 100	0.0000	0.0000	0.0000	-0.0027	0.0000	0.0000
200	0.0000	0.0000	0.0000	-0.0038	0.0000	0.0000
24 100	0.0000	0.0000	0.0000	-0.0027	0.0000	-0.0001
200	0.0000	0.0000	0.0000	-0.0038	0.0000	-0.0001

STAAD FLOOR -- PAGE NO. 7

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
25 100		0.0000	0.0000	0.0000	-0.0015	0.0000	0.0004
200		0.0000	0.0000	0.0000	-0.0021	0.0000	0.0005

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

74. PRINT SUPPORT REACTION
 STAAD FLOOR -- PAGE NO. 8

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = FLOOR

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
-------	------	---------	---------	---------	-------	-------	-------

1	100	-0.36	3.62	0.00	0.00	-0.29	0.00
	200	-0.51	5.07	0.00	0.00	-0.40	0.00
2	100	-0.65	8.84	0.00	0.00	-0.52	0.00
	200	-0.90	12.38	0.00	0.00	-0.72	0.00
3	100	-0.65	7.66	0.00	0.00	-0.52	0.00
	200	-0.91	10.72	0.00	0.00	-0.72	0.00
4	100	-0.65	8.84	0.00	0.00	-0.52	0.00
	200	-0.90	12.38	0.00	0.00	-0.72	0.00
5	100	-0.36	3.62	0.00	0.00	-0.29	0.00
	200	-0.51	5.07	0.00	0.00	-0.40	0.00
6	100	0.47	8.85	0.00	0.00	0.00	0.00
	200	0.66	12.39	0.00	0.00	0.01	0.00
7	100	0.85	20.10	0.00	0.00	0.01	0.00
	200	1.19	28.15	0.00	0.00	0.01	0.00
8	100	0.85	17.99	0.00	0.00	0.01	0.00
	200	1.19	25.19	0.00	0.00	0.01	0.00
9	100	0.85	20.10	0.00	0.00	0.01	0.00
	200	1.19	28.15	0.00	0.00	0.01	0.00
10	100	0.47	8.85	0.00	0.00	0.00	0.00
	200	0.66	12.39	0.00	0.00	0.01	0.00
11	100	-0.23	7.63	0.00	0.00	0.00	0.00
	200	-0.32	10.69	0.00	0.00	0.00	0.00
12	100	-0.40	17.92	0.00	0.00	0.00	0.00
	200	-0.56	25.09	0.00	0.00	0.00	0.00
13	100	-0.40	15.81	0.00	0.00	0.00	0.00
	200	-0.57	22.13	0.00	0.00	0.00	0.00
14	100	-0.40	17.92	0.00	0.00	0.00	0.00
	200	-0.56	25.09	0.00	0.00	0.00	0.00
15	100	-0.23	7.63	0.00	0.00	0.00	0.00
	200	-0.32	10.69	0.00	0.00	0.00	0.00
16	100	0.47	8.85	0.00	0.00	0.00	0.00
	200	0.66	12.39	0.00	0.00	-0.01	0.00
17	100	0.85	20.10	0.00	0.00	-0.01	0.00
	200	1.19	28.15	0.00	0.00	-0.01	0.00
18	100	0.85	17.99	0.00	0.00	-0.01	0.00
	200	1.19	25.19	0.00	0.00	-0.01	0.00
19	100	0.85	20.10	0.00	0.00	-0.01	0.00
	200	1.19	28.15	0.00	0.00	-0.01	0.00
20	100	0.47	8.85	0.00	0.00	0.00	0.00
	200	0.66	12.39	0.00	0.00	-0.01	0.00
21	100	-0.36	3.62	0.00	0.00	0.29	0.00
	200	-0.51	5.07	0.00	0.00	0.40	0.00
22	100	-0.65	8.84	0.00	0.00	0.52	0.00
	200	-0.90	12.38	0.00	0.00	0.72	0.00
23	100	-0.65	7.66	0.00	0.00	0.52	0.00
	200	-0.91	10.72	0.00	0.00	0.72	0.00
24	100	-0.65	8.84	0.00	0.00	0.52	0.00
	200	-0.90	12.38	0.00	0.00	0.72	0.00

STAAD FLOOR

-- PAGE NO.

9

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = FLOOR

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
25	100	-0.36	3.62	0.00	0.00	0.29	0.00
	200	-0.51	5.07	0.00	0.00	0.40	0.00

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

- 75. PARAMETER 1
- 76. CODE BS5950
- 77. PY 275000 MEMB 1 TO 20
- 78. PY 245000 MEMB 21 TO 40
- 79. UNL 1.8 MEMB 1 TO 20
- 80. TRACK 0 ALL
- 81. CHECK CODE ALL

STAAD.Pro CODE CHECKING - (BSI)

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
2 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
3 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
4 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
5 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
6 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
7 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
8 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
9 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
10 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
11 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
12 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
13 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
14 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
15 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
16 ST	C100X50X5	PASS	BS-4.3.6	0.191	200
		0.00	0.00	1.57	0.00
17 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
18 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
19 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
20 ST	C100X50X5	PASS	BS-4.3.6	0.107	200
		0.00	0.00	0.87	0.00
21 ST	L75X75X6	PASS	BS-4.9	0.545	200
		0.00	0.69	0.55	0.00
22 ST	L75X75X6	PASS	BS-4.9	0.544	200
		0.00	0.70	0.54	0.00

STAAD FLOOR

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
23 ST	L75X75X6	PASS	BS-4.9	0.544	200
		0.00	0.70	0.54	0.00
24 ST	L75X75X6	PASS	BS-4.9	0.545	200
		0.00	0.69	0.55	0.00
25 ST	L75X75X6	PASS	BS-4.9	0.980	200
		0.00	1.25	0.99	0.00
26 ST	L75X75X6	PASS	BS-4.9	0.977	200

27	ST	L75X75X6	0.00	1.25	0.98	0.00
		PASS	BS-4.9		0.977	200
			0.00	1.25	0.98	0.00
28	ST	L75X75X6	0.00	1.25	0.980	200
		PASS	BS-4.9		0.99	0.00
			0.00	1.25	0.980	200
29	ST	L75X75X6	0.00	1.25	0.99	0.00
		PASS	BS-4.9		0.980	200
			0.00	1.25	0.99	0.00
30	ST	L75X75X6	0.00	1.25	0.977	200
		PASS	BS-4.9		0.98	0.00
			0.00	1.25	0.98	0.00
31	ST	L75X75X6	0.00	1.25	0.977	200
		PASS	BS-4.9		0.98	0.00
			0.00	1.25	0.980	200
32	ST	L75X75X6	0.00	1.25	0.99	0.00
		PASS	BS-4.9		0.980	200
			0.00	1.25	0.99	0.00
33	ST	L75X75X6	0.00	1.25	0.980	200
		PASS	BS-4.9		0.99	0.00
			0.00	1.25	0.977	200
34	ST	L75X75X6	0.00	1.25	0.98	0.00
		PASS	BS-4.9		0.977	200
			0.00	1.25	0.98	0.00
35	ST	L75X75X6	0.00	1.25	0.977	200
		PASS	BS-4.9		0.98	0.00
			0.00	1.25	0.98	0.00
36	ST	L75X75X6	0.00	1.25	0.980	200
		PASS	BS-4.9		0.99	0.00
			0.00	1.25	0.99	0.00
37	ST	L75X75X6	0.00	0.69	0.545	200
		PASS	BS-4.9		0.55	0.00
			0.00	0.70	0.544	200
38	ST	L75X75X6	0.00	0.70	0.54	0.00
		PASS	BS-4.9		0.544	200
			0.00	0.70	0.54	0.00
39	ST	L75X75X6	0.00	0.70	0.544	200
		PASS	BS-4.9		0.54	0.00
			0.00	0.70	0.54	0.00
40	ST	L75X75X6	0.00	0.69	0.545	200
		PASS	BS-4.9		0.55	0.00
			0.00	0.69	0.54	0.00

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

82. STEEL TAKE OFF ALL
STAAD FLOOR

-- PAGE NO. 12

STEEL TAKE-OFF

PROFILE	LENGTH (METRE)	WEIGHT (KN)
ST C100X50X5	20.00	1.831
ST L75X75X6	20.00	1.341
TOTAL =		3.172

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

83. PRINT CG

CENTER OF GRAVITY OF THE STRUCTURE IS LOCATED AT: (METRE UNIT)

X = 2.00 Y = 0.00 Z = 2.00

TOTAL SELF WEIGHT = 3.172 (KN UNIT)

84. FINISH

3m (H) Tank Analysis

Main beam = C 125x65x13.4kg/m

Sub beam = EA 75x6

Max. Deflection = 1.5mm

PAGE NO. 1

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of                *
*          Bentley Systems, Inc.                 *
*          Date=    NOV 20, 2012                 *
*          Time=                                       *
*
*          USER ID:                               *
*****
```

```
1. STAAD FLOOR
INPUT FILE: skidbase_4x4x3mH_Proposal_A_1m_plinth.std
2. START JOB INFORMATION
3. ENGINEER DATE 20/9/2010
4. JOB NAME SKID BASE DESIGN
5. JOB CLIENT
6. JOB NO
7. JOB REV 0
8. JOB COMMENT PROPOSAL A
9. JOB COMMENT PLINTH DISTANCE 2 METER
10. JOB COMMENT PLINTH CLEAR DISTANCE = 1.8 M
11. ENGINEER NAME
12. CHECKER NAME
13. END JOB INFORMATION
14. INPUT WIDTH 99
15. UNIT METRIC
16. JOINT COORDINATES
17. 1 0 0 0; 2 1 0 0; 3 2 0 0; 4 3 0 0; 5 4 0 0; 6 0 0 1; 7 1 0 1; 8 2 0 1
18. 9 3 0 1; 10 4 0 1; 11 0 0 2; 12 1 0 2; 13 2 0 2; 14 3 0 2; 15 4 0 2; 16 0 0 3
19. 17 1 0 3; 18 2 0 3; 19 3 0 3; 20 4 0 3; 21 0 0 4; 22 1 0 4; 23 2 0 4; 24 3 0 4
20. 25 4 0 4
21. MEMBER INCIDENCES
22. 1 1 2; 2 1 3; 3 3 4; 4 4 5; 5 6 7; 6 7 8; 7 8 9; 8 9 10; 9 11 12; 10 12 13
23. 11 13 14; 12 14 15; 13 16 17; 14 17 18; 15 18 19; 16 19 20; 17 21 22; 18 22 23
24. 19 23 24; 20 24 25; 21 1 6; 22 6 11; 23 11 16; 24 16 21; 25 2 7; 26 7 12
25. 27 12 17; 28 17 22; 29 3 8; 30 8 13; 31 13 18; 32 18 23; 33 4 9; 34 9 14
26. 35 14 19; 36 19 24; 37 5 10; 38 10 15; 39 15 20; 40 20 25
27. DEFINE PMEMBER
28. 1 TO 4 PMEMBER 1
29. 5 TO 8 PMEMBER 2
30. 9 TO 12 PMEMBER 3
31. 13 TO 16 PMEMBER 4
32. 17 TO 20 PMEMBER 5
33. START USER TABLE
34. END
35. START GROUP DEFINITION
36. MEMBER
37. _MAIN_ 1 TO 20
38. _SUB_ 21 TO 40
39. END GROUP DEFINITION
40. DEFINE MATERIAL START
STAAD FLOOR
41. ISOTROPIC STEEL
42. E 2.05E+008
```

-- PAGE NO. 2

43. POISSON 0.3
 44. DENSITY 76.8195
 45. ALPHA 1.2E-005
 46. DAMP 0.03
 47. END DEFINE MATERIAL
 48. MEMBER PROPERTY JAPANESE
 49. 1 TO 20 TABLE ST C125X65X6
 50. 21 TO 40 TABLE ST L75X75X6
 51. CONSTANTS
 52. BETA 45 MEMB 21 TO 40
 53. MATERIAL STEEL ALL
 54. SUPPORTS
 55. 1 TO 25 PINNED
 56. LOAD 1 LOADTYPE NONE TITLE DEAD LOAD
 57. SELFWEIGHT Y -1
 58. FLOOR LOAD
 59. YRANGE 0 0 FLOAD -0.306 XRANGE 0 4 ZRANGE 0 4 GY
 WARNING about Floor/OneWay Loads/Weights.
 Please note that depending on the shape of the floor you may
 have to break up the FLOOR/ONEWAY LOAD into multiple commands.
 For details please refer to Technical Reference Manual
 Section 5.32.4 Note 6.

60. MEMBER LOAD
 61. 1 TO 4 17 TO 24 37 TO 40 UNI GY -0.8414
 62. JOINT LOAD
 63. 7 TO 9 12 TO 14 17 TO 19 FY -0.0806
 64. LOAD 2 LOADTYPE NONE TITLE LIVE LOAD
 65. FLOOR LOAD
 66. YRANGE 0 0 FLOAD -26.487 XRANGE 0 4 ZRANGE 0 4 GY
 67. LOAD COMB 100 1.0DL + 1.0LL (SERVICE)
 68. 1 1.0 2 1.0
 69. LOAD COMB 200 1.4DL + 1.4LL (ULTIMATE)
 70. 1 1.4 2 1.4
 71. PERFORM ANALYSIS PRINT STATICS CHECK
 STAAD FLOOR -- PAGE NO. 3

PROBLEM STATISTICS

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 40/ 25

SOLVER USED IS THE OUT-OF-CORE BASIC SOLVER

ORIGINAL/FINAL BAND-WIDTH= 5/ 5/ 12 DOF
 TOTAL PRIMARY LOAD CASES = 2, TOTAL DEGREES OF FREEDOM = 50
 SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
 REQD/AVAIL. DISK SPACE = 12.1/1999563.5 MB

STAAD FLOOR -- PAGE NO. 4

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 1
 LOADTYPE NONE TITLE DEAD LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
 (FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.1999999999E+01
 Y = 0.0000000000E+00
 Z = 0.2000000000E+01

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 1)
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = -23.05
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= 46.11 MY= 0.00 MZ= -46.11

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 1)
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = 23.05
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= -46.11 MY= 0.00 MZ= 46.11

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 1)
 MAXIMUMS AT NODE
 X = 0.00000E+00 0
 Y = 0.00000E+00 0
 Z = 0.00000E+00 0
 RX= 2.55847E-04 1
 RY= 0.00000E+00 0
 RZ= -3.18922E-05 1

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 2
 LOADTYPE NONE TITLE LIVE LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
 (FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.199999999E+01
 Y = 0.000000000E+00
 Z = 0.199999999E+01

STAAD FLOOR

-- PAGE NO. 5

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 2)
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = 423.79
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= 847.58 MY= 0.00 MZ= -847.58

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 2)
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = 423.79
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= 847.58 MY= 0.00 MZ= 847.58

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 2)
 MAXIMUMS AT NODE
 X = 0.00000E+00 0
 Y = 0.00000E+00 0
 Z = 0.00000E+00 0
 RX= 4.24776E-03 3
 RY= 0.00000E+00 0
 RZ= -4.94928E-04 11

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

72. LOAD LIST 100 200
 73. PRINT JOINT DISPLACEMENTS
 STAAD FLOOR

-- PAGE NO. 6

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

 JOINT LOAD X-TRANS Y-TRANS Z-TRANS X-ROTAN Y-ROTAN Z-ROTAN

1	100	0.0000	0.0000	0.0000	0.0024	0.0000	-0.0003
	200	0.0000	0.0000	0.0000	0.0034	0.0000	-0.0004
2	100	0.0000	0.0000	0.0000	0.0043	0.0000	0.0001
	200	0.0000	0.0000	0.0000	0.0060	0.0000	0.0001
3	100	0.0000	0.0000	0.0000	0.0043	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0060	0.0000	0.0000
4	100	0.0000	0.0000	0.0000	0.0043	0.0000	-0.0001
	200	0.0000	0.0000	0.0000	0.0060	0.0000	-0.0001
5	100	0.0000	0.0000	0.0000	0.0024	0.0000	0.0003
	200	0.0000	0.0000	0.0000	0.0034	0.0000	0.0004
6	100	0.0000	0.0000	0.0000	-0.0006	0.0000	-0.0005
	200	0.0000	0.0000	0.0000	-0.0008	0.0000	-0.0007
7	100	0.0000	0.0000	0.0000	-0.0010	0.0000	0.0001
	200	0.0000	0.0000	0.0000	-0.0014	0.0000	0.0002
8	100	0.0000	0.0000	0.0000	-0.0010	0.0000	0.0000
	200	0.0000	0.0000	0.0000	-0.0014	0.0000	0.0000
9	100	0.0000	0.0000	0.0000	-0.0010	0.0000	-0.0001
	200	0.0000	0.0000	0.0000	-0.0014	0.0000	-0.0002
10	100	0.0000	0.0000	0.0000	-0.0006	0.0000	0.0000
	200	0.0000	0.0000	0.0000	-0.0008	0.0000	0.0000
11	100	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0005
	200	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0007
12	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001
	200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
13	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	100	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0001
	200	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0002
15	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005
	200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
16	100	0.0000	0.0000	0.0000	0.0006	0.0000	-0.0005
	200	0.0000	0.0000	0.0000	0.0008	0.0000	-0.0007
17	100	0.0000	0.0000	0.0000	0.0010	0.0000	0.0001
	200	0.0000	0.0000	0.0000	0.0014	0.0000	0.0002
18	100	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0014	0.0000	0.0000
19	100	0.0000	0.0000	0.0000	0.0010	0.0000	-0.0001
	200	0.0000	0.0000	0.0000	0.0014	0.0000	-0.0002
20	100	0.0000	0.0000	0.0000	0.0006	0.0000	0.0005
	200	0.0000	0.0000	0.0000	0.0008	0.0000	0.0007
21	100	0.0000	0.0000	0.0000	-0.0024	0.0000	-0.0003
	200	0.0000	0.0000	0.0000	-0.0034	0.0000	-0.0004
22	100	0.0000	0.0000	0.0000	-0.0043	0.0000	0.0001
	200	0.0000	0.0000	0.0000	-0.0060	0.0000	0.0001
23	100	0.0000	0.0000	0.0000	-0.0043	0.0000	0.0000
	200	0.0000	0.0000	0.0000	-0.0060	0.0000	0.0000
24	100	0.0000	0.0000	0.0000	-0.0043	0.0000	-0.0001
	200	0.0000	0.0000	0.0000	-0.0060	0.0000	-0.0001

STAAD FLOOR

-- PAGE NO. 7

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
25	100	0.0000	0.0000	0.0000	-0.0024	0.0000	0.0003
	200	0.0000	0.0000	0.0000	-0.0034	0.0000	0.0004

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

74. PRINT SUPPORT REACTION

STAAD FLOOR

-- PAGE NO. 8

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = FLOOR

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
-------	------	---------	---------	---------	-------	-------	-------

1	100	-0.57	5.68	0.00	0.00	-0.45	0.00
	200	-0.79	7.96	0.00	0.00	-0.63	0.00
2	100	-1.02	13.87	0.00	0.00	-0.81	0.00
	200	-1.43	19.41	0.00	0.00	-1.14	0.00
3	100	-1.02	12.08	0.00	0.00	-0.81	0.00
	200	-1.43	16.92	0.00	0.00	-1.14	0.00
4	100	-1.02	13.87	0.00	0.00	-0.81	0.00
	200	-1.43	19.41	0.00	0.00	-1.14	0.00
5	100	-0.57	5.68	0.00	0.00	-0.45	0.00
	200	-0.79	7.96	0.00	0.00	-0.63	0.00
6	100	0.74	13.92	0.00	0.00	0.01	0.00
	200	1.04	19.49	0.00	0.00	0.01	0.00
7	100	1.34	31.64	0.00	0.00	0.01	0.00
	200	1.87	44.29	0.00	0.00	0.01	0.00
8	100	1.34	28.43	0.00	0.00	0.01	0.00
	200	1.88	39.80	0.00	0.00	0.02	0.00
9	100	1.34	31.64	0.00	0.00	0.01	0.00
	200	1.87	44.29	0.00	0.00	0.01	0.00
10	100	0.74	13.92	0.00	0.00	0.01	0.00
	200	1.04	19.49	0.00	0.00	0.01	0.00
11	100	-0.36	12.00	0.00	0.00	0.00	0.00
	200	-0.50	16.80	0.00	0.00	0.00	0.00
12	100	-0.64	28.20	0.00	0.00	0.00	0.00
	200	-0.89	39.48	0.00	0.00	0.00	0.00
13	100	-0.64	24.98	0.00	0.00	0.00	0.00
	200	-0.89	34.98	0.00	0.00	0.00	0.00
14	100	-0.64	28.20	0.00	0.00	0.00	0.00
	200	-0.89	39.48	0.00	0.00	0.00	0.00
15	100	-0.36	12.00	0.00	0.00	0.00	0.00
	200	-0.50	16.80	0.00	0.00	0.00	0.00
16	100	0.74	13.92	0.00	0.00	-0.01	0.00
	200	1.04	19.49	0.00	0.00	-0.01	0.00
17	100	1.34	31.64	0.00	0.00	-0.01	0.00
	200	1.87	44.29	0.00	0.00	-0.01	0.00
18	100	1.34	28.43	0.00	0.00	-0.01	0.00
	200	1.88	39.80	0.00	0.00	-0.02	0.00
19	100	1.34	31.64	0.00	0.00	-0.01	0.00
	200	1.87	44.29	0.00	0.00	-0.01	0.00
20	100	0.74	13.92	0.00	0.00	-0.01	0.00
	200	1.04	19.49	0.00	0.00	-0.01	0.00
21	100	-0.57	5.68	0.00	0.00	0.45	0.00
	200	-0.79	7.96	0.00	0.00	0.63	0.00
22	100	-1.02	13.87	0.00	0.00	0.81	0.00
	200	-1.43	19.41	0.00	0.00	1.14	0.00
23	100	-1.02	12.08	0.00	0.00	0.81	0.00
	200	-1.43	16.92	0.00	0.00	1.14	0.00
24	100	-1.02	13.87	0.00	0.00	0.81	0.00
	200	-1.43	19.41	0.00	0.00	1.14	0.00

STAAD FLOOR

-- PAGE NO. 9

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = FLOOR

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
25	100	-0.57	5.68	0.00	0.00	0.45	0.00
	200	-0.79	7.96	0.00	0.00	0.63	0.00

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

- 75. PARAMETER 1
- 76. CODE BS5950
- 77. PY 275000 MEMB 1 TO 20
- 78. PY 400000 MEMB 21 TO 40
- 79. UNL 1.8 MEMB 1 TO 20
- 80. TRACK 0 ALL
- 81. CHECK CODE ALL

STAAD.Pro CODE CHECKING - (BSI)

PROGRAM CODE REVISION V2.12_5950-1_2000
 STAAD FLOOR

-- PAGE NO. 10

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
2 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
3 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
4 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
5 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
6 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
7 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
8 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
9 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
10 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
11 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
12 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
13 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
14 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
15 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
16 ST	C125X65X6	PASS	BS-4.3.6	0.154	200
		0.00	0.00	2.45	0.00
17 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
18 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
19 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
20 ST	C125X65X6	PASS	BS-4.3.6	0.085	200
		0.00	0.00	1.36	0.00
21 ST	L75X75X6	PASS	BS-4.9	0.523	200
		0.00	1.09	0.86	0.00
22 ST	L75X75X6	PASS	BS-4.9	0.522	200
		0.00	1.09	0.85	0.00

STAAD FLOOR

-- PAGE NO. 11

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
23 ST	L75X75X6	PASS	BS-4.9	0.522	200
		0.00	-1.09	-0.85	1.00
24 ST	L75X75X6	PASS	BS-4.9	0.523	200
		0.00	1.09	0.86	0.00
25 ST	L75X75X6	PASS	BS-4.9	0.947	200

26	ST	L75X75X6	0.00	-1.97	-1.56	1.00
		PASS	BS-4.9		0.944	200
			0.00	1.97	1.55	0.00
27	ST	L75X75X6	0.00	1.97	0.944	200
		PASS	BS-4.9		1.55	0.00
			0.00	1.97	0.947	200
28	ST	L75X75X6	0.00	1.97	1.56	0.00
		PASS	BS-4.9		0.947	200
			0.00	1.97	1.56	0.00
29	ST	L75X75X6	0.00	-1.97	-1.56	1.00
		PASS	BS-4.9		0.945	200
			0.00	1.98	1.55	0.00
31	ST	L75X75X6	0.00	-1.98	-1.55	1.00
		PASS	BS-4.9		0.947	200
			0.00	1.97	1.56	0.00
32	ST	L75X75X6	0.00	1.97	0.947	200
		PASS	BS-4.9		1.56	0.00
			0.00	-1.97	-1.56	1.00
33	ST	L75X75X6	0.00	-1.97	-1.56	1.00
		PASS	BS-4.9		0.944	200
			0.00	1.97	1.55	0.00
34	ST	L75X75X6	0.00	1.97	0.944	200
		PASS	BS-4.9		1.55	0.00
			0.00	1.97	0.947	200
35	ST	L75X75X6	0.00	1.97	1.56	0.00
		PASS	BS-4.9		0.947	200
			0.00	1.97	1.56	0.00
36	ST	L75X75X6	0.00	1.09	0.86	0.00
		PASS	BS-4.9		0.523	200
			0.00	1.09	0.86	0.00
37	ST	L75X75X6	0.00	1.09	0.86	0.00
		PASS	BS-4.9		0.522	200
			0.00	1.09	0.86	0.00
38	ST	L75X75X6	0.00	-1.09	-0.86	1.00
		PASS	BS-4.9		0.523	200
			0.00	1.09	0.86	0.00
39	ST	L75X75X6	0.00	-1.09	-0.86	1.00
		PASS	BS-4.9		0.523	200
			0.00	1.09	0.86	0.00
40	ST	L75X75X6	0.00	1.09	0.86	0.00
		PASS	BS-4.9		0.523	200
			0.00	1.09	0.86	0.00

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

82. STEEL TAKE OFF ALL
STAAD FLOOR

-- PAGE NO. 12

STEEL TAKE-OFF

PROFILE	LENGTH (METER)	WEIGHT (KN)
ST C125X65X6	20.00	2.629
ST L75X75X6	20.00	1.341
	TOTAL =	3.970

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

83. PRINT CG

CENTER OF GRAVITY OF THE STRUCTURE IS LOCATED AT: (METER UNIT)

X = 2.00 Y = 0.00 Z = 2.00

TOTAL SELF WEIGHT = 3.970 (KN UNIT)

84. FINISH

4m (H) Tank Analysis

Main beam = UB 152x89x16kg/m

Sub beam = EA 90x6

Max. Deflection = 1.3mm

PAGE NO. 1

```
*****
*
*          STAAD.Pro V8i SELECTseries1          *
*          Version  20.07.06.35                  *
*          Proprietary Program of               *
*          Bentley Systems, Inc.                *
*          Date=    NOV 20, 2012                *
*          Time=                                       *
*
*          USER ID:                               *
*****
```

```
1. STAAD FLOOR
INPUT FILE: skidbase_4x4x4mH_Proposal_A_1m_plinth.stid
2. START JOB INFORMATION
3. ENGINEER DATE 20/9/2010
4. JOB NAME SKID BASE DESIGN
5. JOB CLIENT
6. JOB
7. JOB REV 0
8. JOB COMMENT PROPOSAL A
9. JOB COMMENT PLINTH DISTANCE 2 METERS
10. JOB COMMENT PLINTH CLEAR DISTANCE = 1.8 M
11. ENGINEER NAME
12. CHECKER NAME
13. END JOB INFORMATION
14. INPUT WIDTH 99
15. UNIT METRIC
16. JOINT COORDINATES
17. 1 0 0 0; 2 1 0 0; 3 2 0 0; 4 3 0 0; 5 4 0 0; 6 0 0 1; 7 1 0 1; 8 2 0 1
18. 9 3 0 1; 10 4 0 1; 11 0 0 2; 12 1 0 2; 13 2 0 2; 14 3 0 2; 15 4 0 2; 16 0 0 3
19. 17 1 0 3; 18 2 0 3; 19 3 0 3; 20 4 0 3; 21 0 0 4; 22 1 0 4; 23 2 0 4; 24 3 0 4
20. 25 4 0 4
21. MEMBER INCIDENCES
22. 1 1 2; 2 1 3; 3 3 4; 4 4 5; 5 6 7; 6 7 8; 7 8 9; 8 9 10; 9 11 12; 10 12 13
23. 11 13 14; 12 14 15; 13 16 17; 14 17 18; 15 18 19; 16 19 20; 17 21 22; 18 22 23
24. 19 23 24; 20 24 25; 21 1 6; 22 6 11; 23 11 16; 24 16 21; 25 2 7; 26 7 12
25. 27 12 17; 28 17 22; 29 3 8; 30 8 13; 31 13 18; 32 18 23; 33 4 9; 34 9 14
26. 35 14 19; 36 19 24; 37 5 10; 38 10 15; 39 15 20; 40 20 25
27. DEFINE PMEMBER
28. 1 TO 4 PMEMBER 1
29. 5 TO 8 PMEMBER 2
30. 9 TO 12 PMEMBER 3
31. 13 TO 16 PMEMBER 4
32. 17 TO 20 PMEMBER 5
33. START USER TABLE
34. END
35. START GROUP DEFINITION
36. MEMBER
37. _MAIN_ 1 TO 20
38. _SUB_ 21 TO 40
39. END GROUP DEFINITION
40. DEFINE MATERIAL START
STAAD FLOOR
41. ISOTROPIC STEEL
42. E 2.05E+008
```

-- PAGE NO. 2

43. POISSON 0.3
 44. DENSITY 76.8195
 45. ALPHA 1.2E-005
 46. DAMP 0.03
 47. END DEFINE MATERIAL
 48. MEMBER PROPERTY JAPANESE
 49. 21 TO 40 TABLE ST L90X90X6
 50. MEMBER PROPERTY BRITISH
 51. 1 TO 20 TABLE ST UB152X89X16
 52. CONSTANTS
 53. BETA 45 MEMB 21 TO 40
 54. MATERIAL STEEL ALL
 55. SUPPORTS
 56. 1 3 5 6 8 10 11 13 15 16 18 20 21 23 25 PINNED
 57. LOAD 1 LOADTYPE NONE TITLE DEAD LOAD
 58. SELFWEIGHT Y -1
 59. FLOOR LOAD
 60. YRANGE 0 0 FLOAD -0.3276 XRANGE 0 4 ZRANGE 0 4 GY

****WARNING**** about Floor/OneWay Loads/Weights.
 Please note that depending on the shape of the floor you may have to break up the FLOOR/ONEWAY LOAD into multiple commands. For details please refer to Technical Reference Manual Section 5.32.4 Note 6.

61. MEMBER LOAD
 62. 1 TO 4 17 TO 24 37 TO 40 UNI GY -1.1819
 63. JOINT LOAD
 64. 7 TO 9 12 TO 14 17 TO 19 FY -0.0806
 65. LOAD 2 LOADTYPE NONE TITLE LIVE LOAD
 66. FLOOR LOAD
 67. YRANGE 0 0 FLOAD -36.297 XRANGE 0 4 ZRANGE 0 4 GY
 68. LOAD COMB 100 1.0DL + 1.0LL (SERVICE)
 69. 1 1.0 2 1.0
 70. LOAD COMB 200 1.4DL + 1.4LL (ULTIMATE)
 71. 1 1.4 2 1.4
 72. PERFORM ANALYSIS PRINT STATICS CHECK
 STAAD FLOOR

-- PAGE NO. 3

PROBLEM STATUS

NUMBER OF JOINTS/MEMBER+ELEMENTS/SUPPORTS = 25/ 40/ 15

SOLVER USED IS THE CUT-OFF-CORE BASIC SOLVER

ORIGINAL/ELEMENT BAND WIDTH= 5/ 5/ 15 DOF
 TOTAL PRIMARY LOAD CASES = 2, TOTAL DEGREES OF FREEDOM = 60
 SIZE OF STIFFNESS MATRIX = 1 DOUBLE KILO-WORDS
 REQUIRED/WALL. DISK SPACE = 12.1/1999525.2 MB

STAAD FLOOR

-- PAGE NO. 4

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 1
 LOADTYPE NONE TITLE DEAD LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METER).
 (FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.199999999E+01
 Y = 0.000000000E+00
 Z = 0.200000000E+01

*****TOTAL APPLIED LOAD (KN METER) SUMMARY (LOADING 1)**
 SUMMATION FORCE-X = 0.00
 SUMMATION FORCE-Y = -29.62
 SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
 MX= 59.23 MY= 0.00 MZ= -59.23

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 1)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = 29.62
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -59.23 MY= 0.00 MZ= 59.23

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 1)
MAXIMUMS AT NODE
X = 0.000000E+00 0
Y = -8.91217E-03 22
Z = 0.000000E+00 0
RX= 2.00503E-04 5
RY= 0.000000E+00 0
RZ= -1.54795E-04 1

STATIC LOAD/REACTION/EQUILIBRIUM SUMMARY FOR CASE NO. 2
LOADTYPE NONE TITLE LIVE LOAD

CENTER OF FORCE BASED ON Y FORCES ONLY (METE).
(FORCES IN NON-GLOBAL DIRECTIONS WILL INVALIDATE RESULTS)

X = 0.200000000E+01
Y = 0.000000000E+00
Z = 0.199999999E+01

STAAD FLOOR

-- PAGE NO. 5

***TOTAL APPLIED LOAD (KN METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = -30.75
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= 1161.50 MY= 0.00 MZ= -1161.50

***TOTAL REACTION LOAD(KN METE) SUMMARY (LOADING 2)
SUMMATION FORCE-X = 0.00
SUMMATION FORCE-Y = 30.75
SUMMATION FORCE-Z = 0.00

SUMMATION OF MOMENTS AROUND THE ORIGIN-
MX= -1161.50 MY= 0.00 MZ= 1161.50

MAXIMUM DISPLACEMENTS (CM /RADIANS) (LOADING 2)
MAXIMUMS AT NODE
X = 0.000000E+00 0
Y = -2.58679E-01 7
Z = 0.000000E+00 0
RX= 4.95478E-03 2
RY= 0.000000E+00 0
RZ= 3.59020E-03 10

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

73. LOAD LIST 100 200
74. PRINT JOINT DISPLACEMENTS
STAAD FLOOR

-- PAGE NO. 6

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

JOINT LOAD X-TRANS Y-TRANS Z-TRANS X-ROTAN Y-ROTAN Z-ROTAN

1	100	0.0000	0.0000	0.0000	0.0019	0.0000	-0.0017
	200	0.0000	0.0000	0.0000	0.0027	0.0000	-0.0024
2	100	0.0000	-0.1023	0.0000	0.0049	0.0000	0.0003
	200	0.0000	-0.1433	0.0000	0.0069	0.0000	0.0004
3	100	0.0000	0.0000	0.0000	0.0034	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0048	0.0000	0.0000
4	100	0.0000	-0.1023	0.0000	0.0049	0.0000	-0.0003
	200	0.0000	-0.1433	0.0000	0.0069	0.0000	-0.0004
5	100	0.0000	0.0000	0.0000	0.0019	0.0000	0.0017
	200	0.0000	0.0000	0.0000	0.0027	0.0000	0.0024
6	100	0.0000	0.0000	0.0000	-0.0004	0.0000	-0.0037
	200	0.0000	0.0000	0.0000	-0.0006	0.0000	-0.0051
7	100	0.0000	-0.2227	0.0000	-0.0004	0.0000	0.0007
	200	0.0000	-0.3118	0.0000	-0.0005	0.0000	0.0009
8	100	0.0000	0.0000	0.0000	-0.0008	0.0000	0.0000
	200	0.0000	0.0000	0.0000	-0.0011	0.0000	0.0000
9	100	0.0000	-0.2227	0.0000	-0.0004	0.0000	-0.0007
	200	0.0000	-0.3118	0.0000	-0.0005	0.0000	-0.0009
10	100	0.0000	0.0000	0.0000	-0.0004	0.0000	0.0037
	200	0.0000	0.0000	0.0000	-0.0006	0.0000	0.0051
11	100	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0035
	200	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0049
12	100	0.0000	-0.2104	0.0000	0.0000	0.0000	0.0006
	200	0.0000	-0.2945	0.0000	0.0000	0.0000	0.0009
13	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	100	0.0000	-0.2104	0.0000	0.0000	0.0000	-0.0006
	200	0.0000	-0.2945	0.0000	0.0000	0.0000	-0.0009
15	100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0035
	200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0049
16	100	0.0000	0.0000	0.0000	0.0004	0.0000	-0.0037
	200	0.0000	0.0000	0.0000	0.0004	0.0000	-0.0051
17	100	0.0000	-0.2227	0.0000	0.0004	0.0000	0.0007
	200	0.0000	-0.3118	0.0000	0.0005	0.0000	0.0009
18	100	0.0000	0.0000	0.0000	0.0008	0.0000	0.0000
	200	0.0000	0.0000	0.0000	0.0011	0.0000	0.0000
19	100	0.0000	-0.2227	0.0000	0.0004	0.0000	-0.0007
	200	0.0000	-0.3118	0.0000	0.0005	0.0000	-0.0009
20	100	0.0000	0.0000	0.0000	0.0004	0.0000	0.0037
	200	0.0000	0.0000	0.0000	0.0006	0.0000	0.0051
21	100	0.0000	0.0000	0.0000	-0.0019	0.0000	-0.0017
	200	0.0000	0.0000	0.0000	-0.0027	0.0000	-0.0024
22	100	0.0000	-0.1023	0.0000	-0.0049	0.0000	0.0003
	200	0.0000	-0.1433	0.0000	-0.0069	0.0000	0.0004
23	100	0.0000	0.0000	0.0000	-0.0034	0.0000	0.0000
	200	0.0000	0.0000	0.0000	-0.0048	0.0000	0.0000
24	100	0.0000	-0.1023	0.0000	-0.0049	0.0000	-0.0003
	200	0.0000	-0.1433	0.0000	-0.0069	0.0000	-0.0004

STAAD FLOOR -- PAGE NO. 7

JOINT DISPLACEMENT (CM RADIANS) STRUCTURE TYPE = FLOOR

JOINT	LOAD	X-TRANS	Y-TRANS	Z-TRANS	X-ROTAN	Y-ROTAN	Z-ROTAN
25	100	0.0000	0.0000	0.0000	-0.0019	0.0000	0.0017
	200	0.0000	0.0000	0.0000	-0.0027	0.0000	0.0024

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

75. PRINT SUPPORT REACTION
 STAAD FLOOR -- PAGE NO. 8

SUPPORT REACTIONS -UNIT KN METE STRUCTURE TYPE = FLOOR

JOINT	LOAD	FORCE-X	FORCE-Y	FORCE-Z	MOM-X	MOM-Y	MOM Z
1	100	-0.77	13.93	0.00	0.00	-0.62	0.00
	200	-1.07	19.50	0.00	0.00	-0.87	0.00
3	100	-1.38	42.98	0.00	0.00	-1.11	0.00
	200	-1.93	60.17	0.00	0.00	-1.56	0.00
5	100	-0.77	13.93	0.00	0.00	-0.62	0.00
	200	-1.07	19.50	0.00	0.00	-0.87	0.00
6	100	1.00	32.38	0.00	0.00	0.01	0.00
	200	1.40	45.33	0.00	0.00	0.02	0.00
8	100	1.80	96.29	0.00	0.00	0.02	0.00
	200	2.52	134.80	0.00	0.00	0.03	0.00
10	100	1.00	32.38	0.00	0.00	0.01	0.00
	200	1.40	45.33	0.00	0.00	0.02	0.00
11	100	-0.46	29.07	0.00	0.00	0.00	0.00
	200	-0.65	40.69	0.00	0.00	0.00	0.00
13	100	-0.83	88.49	0.00	0.00	0.00	0.00
	200	-1.17	123.88	0.00	0.00	0.00	0.00
15	100	-0.46	29.07	0.00	0.00	0.00	0.00
	200	-0.65	40.69	0.00	0.00	0.00	0.00
16	100	1.00	32.38	0.00	0.00	-0.01	0.00
	200	1.40	45.33	0.00	0.00	-0.02	0.00
18	100	1.80	96.29	0.00	0.00	-0.02	0.00
	200	2.52	134.80	0.00	0.00	-0.03	0.00
20	100	1.00	32.38	0.00	0.00	-0.01	0.00
	200	1.40	45.33	0.00	0.00	-0.02	0.00
21	100	-0.77	13.93	0.00	0.00	-0.62	0.00
	200	-1.07	19.50	0.00	0.00	-0.87	0.00
23	100	-1.38	42.98	0.00	0.00	-1.11	0.00
	200	-1.93	60.17	0.00	0.00	-1.56	0.00
25	100	-0.77	13.93	0.00	0.00	-0.62	0.00
	200	-1.07	19.50	0.00	0.00	-0.87	0.00

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

76. PARAMETER 1
77. CODE BS5950
78. PY 275000 MEMB 1 TO 20
79. PY 400000 MEMB 21 TO 40
80. UNL 1.8 MEMB 1 TO 20
81. TRACK 0 ALL
82. CHECK CODE ALL
STAAD FLOOR

-- PAGE NO. 9

STAAD.Pro CODE CHECKING - (BSI)

PROGRAM CODE REVISION V2.12_5950-1_2000
STAAD FLOOR

-- PAGE NO. 10

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ FX	CRITICAL COND/ MY	RATIO/ MZ	LOADING/ LOCATION
1	ST UB152X89X16	PASS	BS-4.3.6	0.272	200
		0.00	0.00	6.79	0.00
2	ST UB152X89X16	PASS	BS-4.3.6	0.452	200
		0.00	0.00	11.25	0.00
3	ST UB152X89X16	PASS	BS-4.3.6	0.452	200
		0.00	0.00	11.25	0.00
4	ST UB152X89X16	PASS	BS-4.3.6	0.272	200
		0.00	0.00	6.79	0.00
5	ST UB152X89X16	PASS	BS-4.3.6	0.616	200
		0.00	0.00	15.35	0.00
6	ST UB152X89X16	PASS	BS-4.3.6	0.963	200
		0.00	0.00	23.98	0.00

7	ST	UB152X89X16	PASS	BS-4.3.6	0.963	200
			0.00	0.00	23.98	0.00
8	ST	UB152X89X16	PASS	BS-4.3.6	0.616	200
			0.00	0.00	15.35	0.00
9	ST	UB152X89X16	PASS	BS-4.3.6	0.575	200
			0.00	0.00	14.32	0.00
10	ST	UB152X89X16	PASS	BS-4.3.6	0.915	200
			0.00	0.00	22.79	0.00
11	ST	UB152X89X16	PASS	BS-4.3.6	0.915	200
			0.00	0.00	22.79	0.00
12	ST	UB152X89X16	PASS	BS-4.3.6	0.575	200
			0.00	0.00	14.32	0.00
13	ST	UB152X89X16	PASS	BS-4.3.6	0.616	200
			0.00	0.00	15.35	0.00
14	ST	UB152X89X16	PASS	BS-4.3.6	0.963	200
			0.00	0.00	23.98	0.00
15	ST	UB152X89X16	PASS	BS-4.3.6	0.963	200
			0.00	0.00	23.98	0.00
16	ST	UB152X89X16	PASS	BS-4.3.6	0.616	200
			0.00	0.00	15.35	0.00
17	ST	UB152X89X16	PASS	BS-4.3.6	0.272	200
			0.00	0.00	6.79	0.00
18	ST	UB152X89X16	PASS	BS-4.3.6	0.452	200
			0.00	0.00	11.25	0.00
19	ST	UB152X89X16	PASS	BS-4.3.6	0.452	200
			0.00	0.00	11.25	0.00
20	ST	UB152X89X16	PASS	BS-4.3.6	0.272	200
			0.00	0.00	6.79	0.00
21	ST	L90X90X6	PASS	BS-4.9	0.483	200
			0.00	1.47	1.18	0.00
22	ST	L90X90X6	PASS	BS-4.9	0.481	200
			0.00	1.48	1.17	0.00

STAAD FLOOR

ALL UNITS ARE - KN METE (UNLESS OTHERWISE NOTED)

MEMBER	TABLE	RESULT/ F	CRITICAL COND M	RATIO/ MZ	LOADING/ LOCATION	
23	ST	L90X90X6	PASS	BS-4.9	0.481	200
			0.00	1.48	1.17	0.00
24	ST	L90X90X6	PASS	BS-4.9	0.483	200
			0.00	1.47	1.18	0.00
25	ST	L90X90X6	PASS	BS-4.9	0.835	200
			0.00	2.70	1.97	0.00
26	ST	L90X90X6	PASS	BS-4.9	0.754	200
			0.00	2.07	1.94	0.00
27	ST	L90X90X6	PASS	BS-4.9	0.754	200
			0.00	2.07	1.94	0.00
28	ST	L90X90X6	PASS	BS-4.9	0.835	200
			0.00	2.70	1.97	0.00
29	ST	L90X90X6	PASS	BS-4.9	0.873	200
			0.00	-2.66	-2.13	1.00
30	ST	L90X90X6	PASS	BS-4.9	0.869	200
			0.00	2.68	2.11	0.00
31	ST	L90X90X6	PASS	BS-4.9	0.869	200
			0.00	2.68	2.11	0.00
32	ST	L90X90X6	PASS	BS-4.9	0.873	200
			0.00	2.66	2.13	0.00
33	ST	L90X90X6	PASS	BS-4.9	0.835	200
			0.00	2.70	1.97	0.00
34	ST	L90X90X6	PASS	BS-4.9	0.754	200
			0.00	2.07	1.94	0.00
35	ST	L90X90X6	PASS	BS-4.9	0.754	200
			0.00	2.07	1.94	0.00
36	ST	L90X90X6	PASS	BS-4.9	0.835	200
			0.00	2.70	1.97	0.00
37	ST	L90X90X6	PASS	BS-4.9	0.483	200
			0.00	1.47	1.18	0.00
38	ST	L90X90X6	PASS	BS-4.9	0.481	200
			0.00	1.48	1.17	0.00
39	ST	L90X90X6	PASS	BS-4.9	0.481	200

40 ST L90X90X6	0.00	1.48	1.17	0.00
	PASS	BS-4.9	0.483	200
	0.00	1.47	1.18	0.00

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

83. STEEL TAKE OFF ALL
STAAD FLOOR

-- PAGE NO. 12

STEEL TAKE-OFF

PROFILE	LENGTH (METER)	WEIGHT (KN)
ST UB152X89X16	20.00	3.119
ST L90X90X6	20.00	1.621
	TOTAL =	4.740

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

84. PRINT CG

CENTER OF GRAVITY OF THE STRUCTURE IS LOCATED AT: (METER UNIT)

X = 2.00 Y = 0.00 Z = 2.00

TOTAL SELF WEIGHT = 4.740 (KN UNIT)

85. FINISH

Property Of
J-EMS Enterprise Pte Ltd