Analysis1

MESH:

Entity	Size
Nodes	1490
Elements	5487

ELEMENT TYPE:

Connectivity	Statistics
TE4	5487 (100.00%)

ELEMENT QUALITY:

Criterion	Good	Poor	Bad	Worst	Average
Stretch	5487 (100.00%)	0 (0.00%)	0 (0.00%)	0.447	0.653
Aspect Ratio	5487 (100.00%)	0 (0.00%)	0 (0.00%)	3.624	1.823

Materials.1

Material	Concrete
Young's modulus	2.5e+010N_m2
Poisson's ratio	0.3

Density	2320kg_m3
Coefficient of thermal expansion	1e-005_Kdeg
Yield strength	0N_m2

Static Case

Boundary Conditions

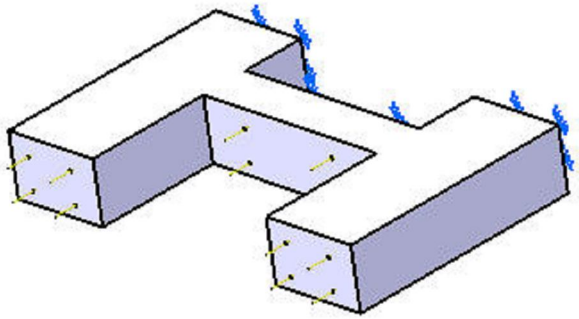

Figure 1

STRUCTURE Computation

Number of nodes	:	1490
Number of elements	:	5487

Number of D.O.F.	:	4470
Number of Contact relations	:	0
Number of Kinematic relations	:	0

Linear tetrahedron : 5487

RESTRAINT Computation

Name: RestraintSet.1

Number of S.P.C : 405

LOAD Computation

Name: Loads.1

Applied load resultant :

Fx	=	2	.	608e-008	N
Fy	=	2	.	136e+004	N
Fz	=	0	.	000e+000	N
Mx	=	-4	.	098e+003	Nxm
My	=	-1	.	254e-007	Nxm
Mz	=	1	.	062e-005	Nxm

STIFFNESS Computation

Number of lines	:	4470			
Number of coefficients	:	79968			
Number of blocks	:	1			
Maximum number of coefficients per bloc	:	79968			
Total matrix size	:	0	.	93	Mb

SINGULARITY Computation

Restraint: RestraintSet.1

Number of local singularities	:	0
Number of singularities in translation	:	0
Number of singularities in rotation	:	0
Generated constraint type	:	MPC

CONSTRAINT Computation

Restraint: RestraintSet.1

Number of constraints	:	405
Number of coefficients	:	0
Number of factorized constraints	:	405
Number of coefficients	:	0
Number of deferred constraints	:	0

FACTORIZED Computation

Method	:		SPARSE	
Number of factorized degrees	:	4065		
Number of supernodes	:	681		
Number of overhead indices	:	26238		
Number of coefficients	:	284937		
Maximum front width	:	210		
Maximum front size	:	22155		
Size of the factorized matrix (Mb)	:	2	.	1739
Number of blocks	:	1		
Number of Mflops for factorization	:	3	.	184e+001
Number of Mflops for solve	:	1	.	160e+000
Minimum relative pivot	:	8	.	073e-002

Minimum and maximum pivot

Value	Dof	Node	x (mm)	y (mm)	z (mm)
4.8036e+008	Tz	967	1.0024e+003	3.0894e+002	2.9623e+002
1.6714e+010	Ty	467	1.0020e+003	4.0114e+002	3.8367e+002

Minimum pivot

Value	Dof	Node	x (mm)	y (mm)	z (mm)
5.3886e+008	Tx	967	1.0024e+003	3.0894e+002	2.9623e+002
6.0205e+008	Tx	1010	7.0047e+002	-3.9721e+002	9.2188e+001
6.8517e+008	Tz	1021	7.7352e+002	-1.6645e+002	1.6383e+002
6.9631e+008	Tx	1021	7.7352e+002	-1.6645e+002	1.6383e+002
7.2253e+008	Tz	1010	7.0047e+002	-3.9721e+002	9.2188e+001
7.2714e+008	Tz	91	1.0000e+002	-1.5225e+002	3.8367e+002
7.8065e+008	Tz	51	-1.2034e+003	-1.9691e+002	3.8367e+002
8.0251e+008	Tz	80	-6.0900e+002	-2.9691e+002	3.8367e+002
8.1001e+008	Tz	10	6.0900e+002	-9.3989e+002	3.8367e+002

Translational pivot distribution

Value	Percentage
10.E8 --> 10.E9	4.9200e-001
10.E9 --> 10.E10	9.7023e+001
10.E10 --> 10.E11	2.4846e+000

DIRECT METHOD Computation

Name: StaticSet.1

Restraint: RestraintSet.1

Load: LoadSet.1

Strain Energy : 9.063e-003 J

Equilibrium

Components	Applied Forces	Reactions	Residual	Relative Magnitude Error
Fx (N)	2.6077e-008	-2.6108e-008	-3.0482e-011	5.0576e-014
Fy (N)	2.1360e+004	-2.1360e+004	0.0000e+000	0.0000e+000
Fz (N)	0.0000e+000	5.9508e-012	5.9508e-012	9.8735e-015
Mx (Nxm)	-4.0976e+003	4.0976e+003	0.0000e+000	0.0000e+000
My (Nxm)	-1.2536e-007	1.2537e-007	1.9991e-012	2.7563e-015
Mz (Nxm)	1.0618e-005	-1.0618e-005	-8.4555e-012	1.1658e-014

Static Case Solution.1 - Deformed mesh.2

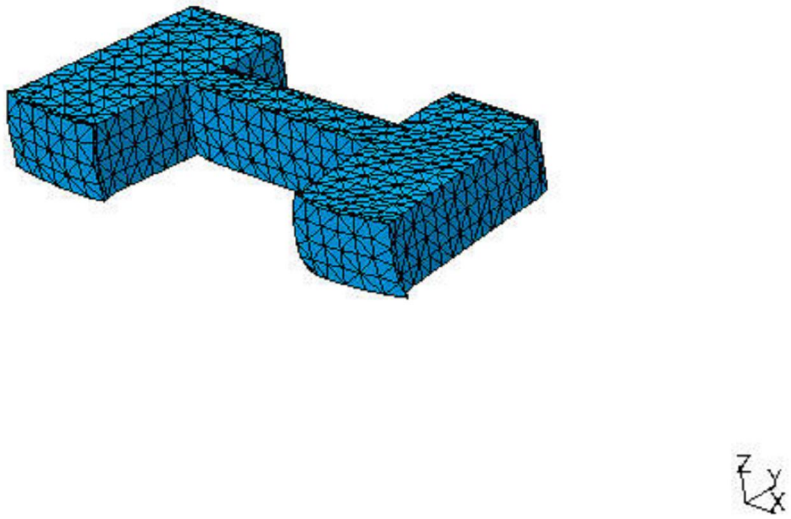

Figure 2

On deformed mesh ---- On boundary ---- Over all the model

Static Case Solution.1 - Von Mises stress (nodal values).2

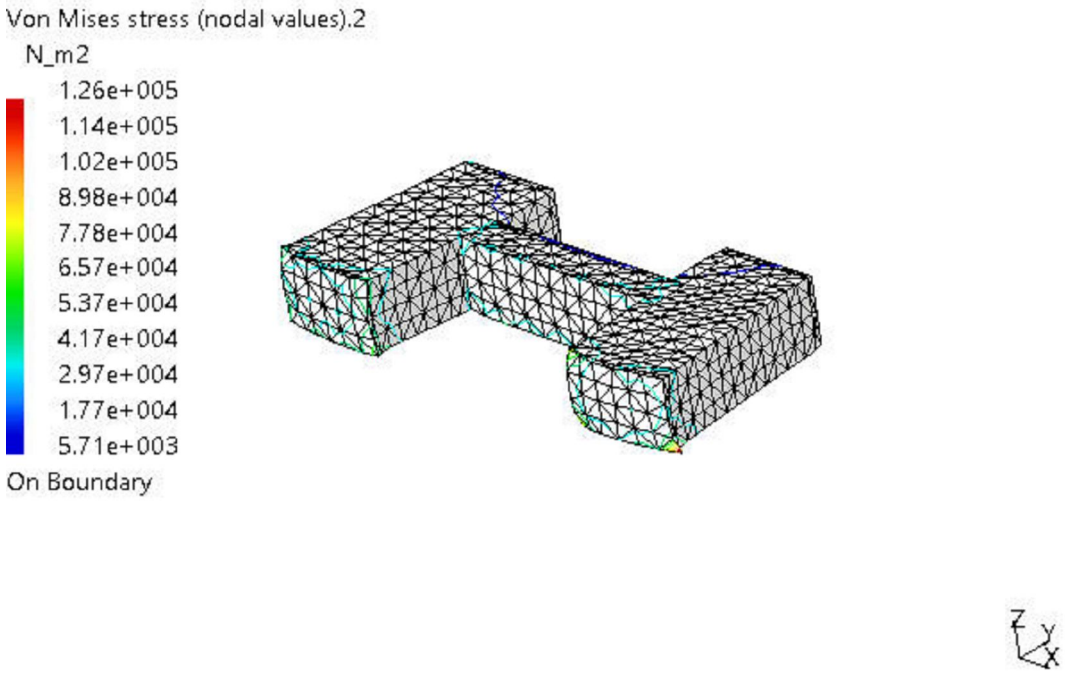

Figure 3

3D elements: : Components: : All

On deformed mesh ---- On boundary ---- Over all the model

Static Case Solution.1 - Deformed mesh.1

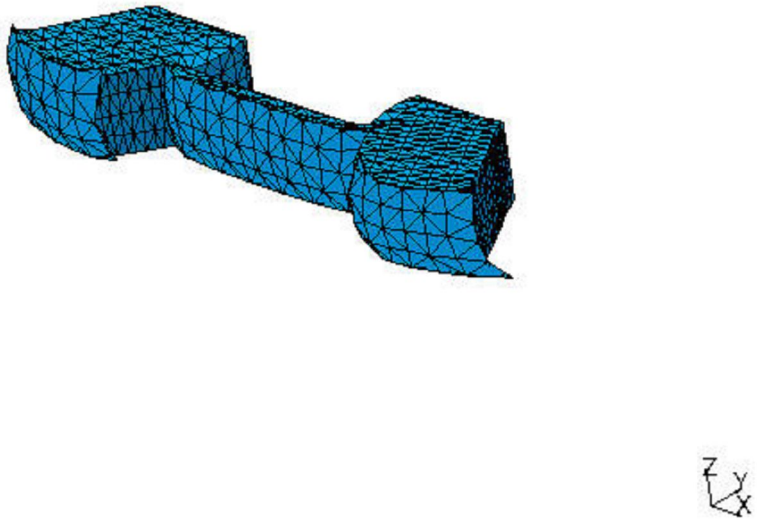

Figure 4

On deformed mesh ---- On boundary ---- Over all the model

Static Case Solution.1 - Translational displacement vector.1

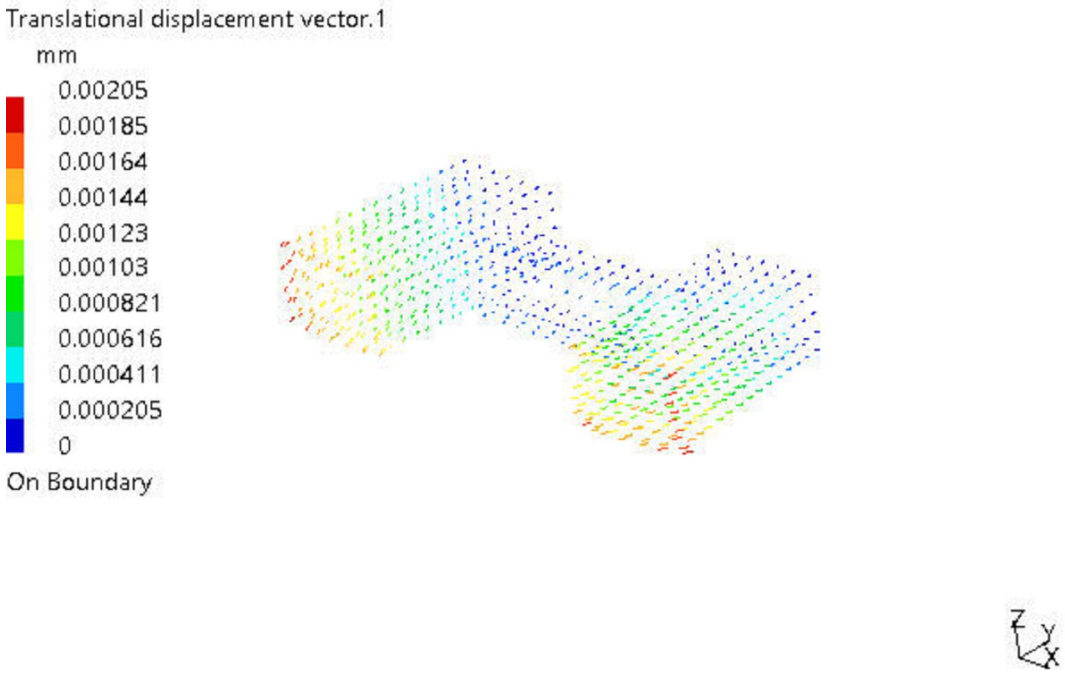

Figure 5

3D elements: : Components: : All

On deformed mesh ---- On boundary ---- Over all the model

Global Sensors

Sensor Name	Sensor Value
Energy	0.009J