Simple Cantilever Test

20 by 20 section (A = 400) with 100 beam length (L)

End load uniform pressure = 1000 , therefore load = 400000 (P)

Using E = 200000   ,   End Deflection = P*L / (E*A) = 0.5

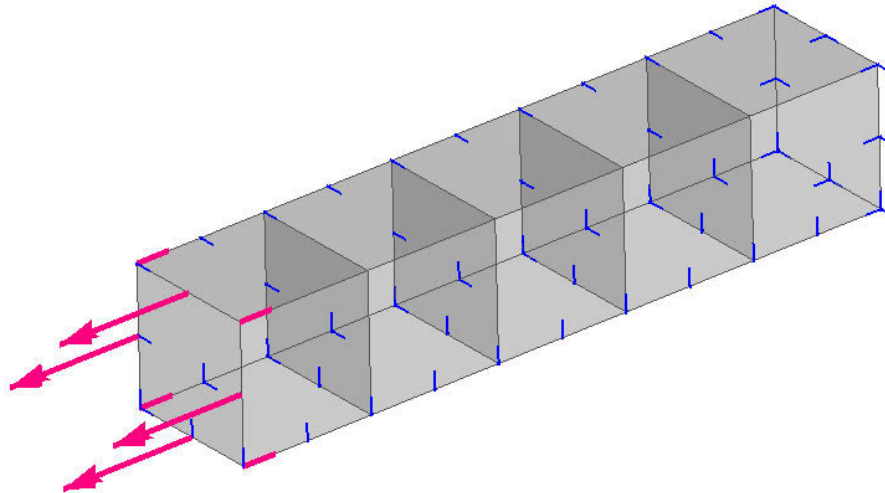FEA model made with 20 node brick elements and solved in Calculix

Model : SIMPLE_CANTILEVER   03/03/2008
                                                                   12:33:13

Nodal Supports - normal to surface on 3 planes

Nodal Forces - for uniform pressure distribution
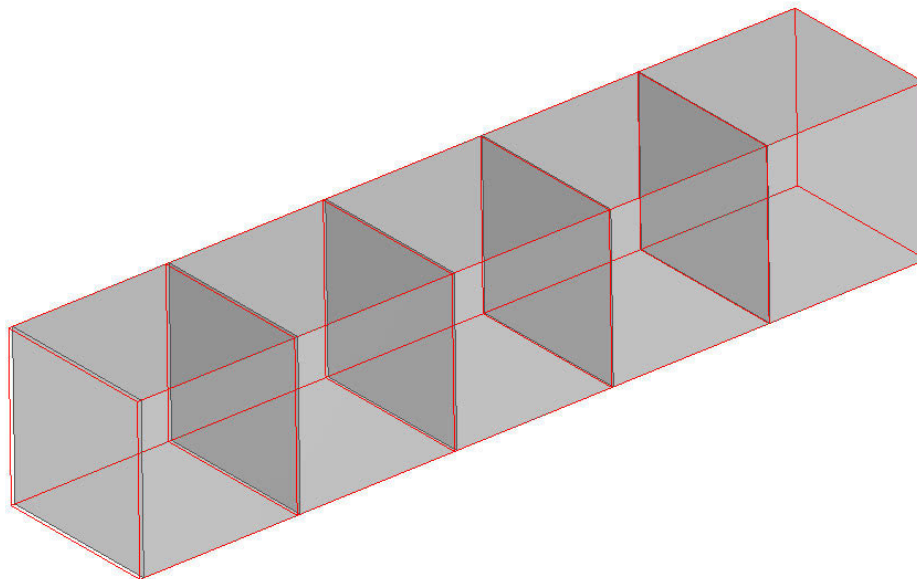
Y
Z   X

ROSHAZ

Model : SIMPLE_CANTILEVER   03/03/2008
Case : TENSION   12:57:49
Displacement Z
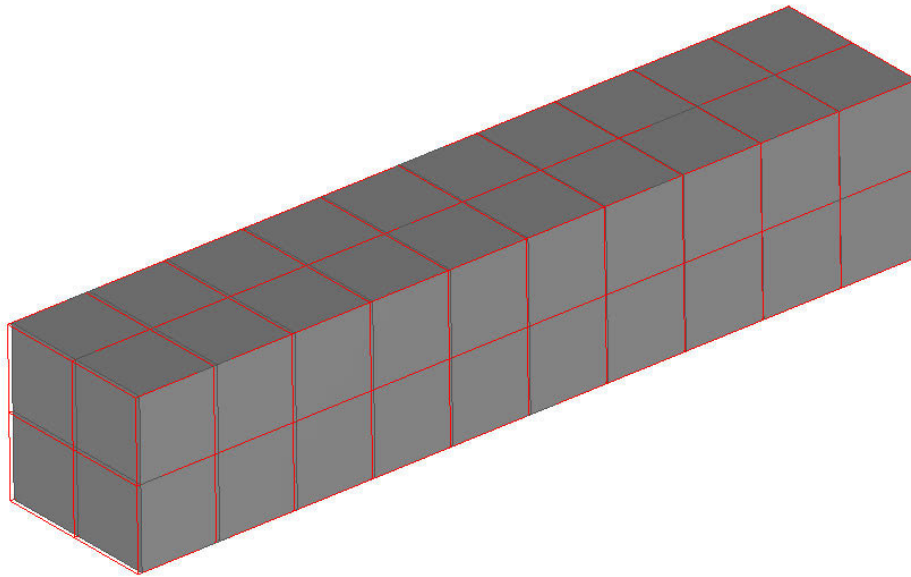Scaling = 1.
Maximum = 0.4969
Minimum = 0.0000

Y
Z   X

ROSHAZ

Model : SIMPLE_CANTILEVER_40_ELEMENTS
Case : TENSION
Displacement Z
Scaling = 1.
Maximum = 0.4973
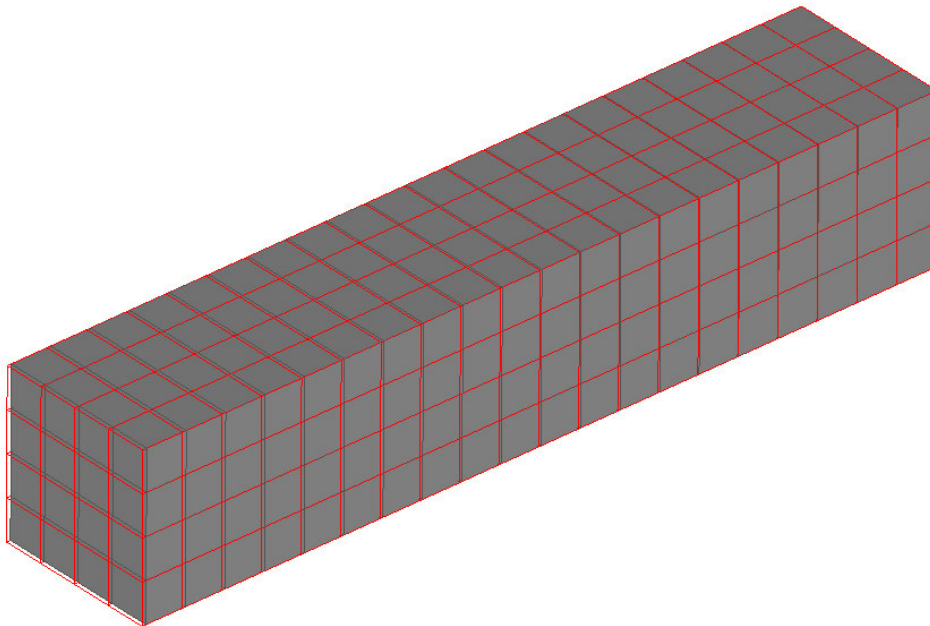Minimum = 0.0000

03/03/2008
13:01:07

Y
Z X

ROSHAZ

Model : SIMPLE_CANTILEVER_320_ELEMENTS
Case : TENSION
Displacement Z
Scaling = 1.
Maximum = 0.4974
Minimum = 0.0000
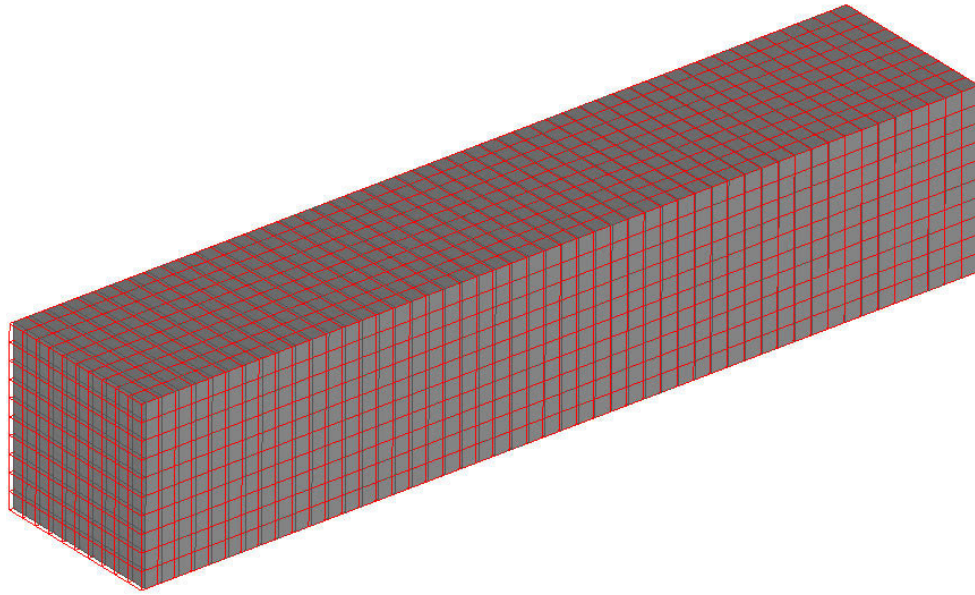
03/03/2008
13:30:15

Y
Z X

ROSHAZ

Model : SIMPLE_CANTILEVER_5000_ELEMENTS
Case : TENSION
Displacement Z
Scaling = 1.
Maximum = 0.4975
Minimum = 0.0000

03/03/2008
13:02:27

ROSHAZ

Result Summary

Number of Elements	End Displacement	% Error
5	0.4969	0.62
40	0.4973	0.54
320	0.4974	0.52
5000	0.4975	0.50