Contents

1 27NodeBrick cantilever beams

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, E=1E8Pa, $\nu = 0.0$. The force direction was shown in Figure (1).

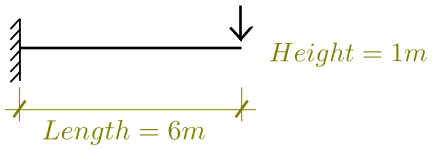

Figure 1: Problem description for cantilever beams

Numerical model:

The 27NodeBrick elements were shown in Figure (2).

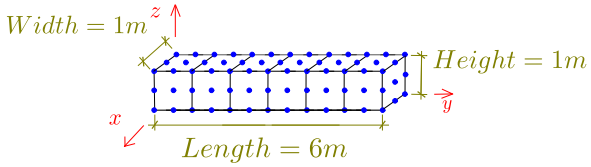

Figure 2: 27NodeBrick elements for cantilever beams

2 4NodeANDES cantilever beams under the force perpendicular to plane

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, E=1E8Pa, $\nu = 0.0$. The force direction was shown in Figure (3).

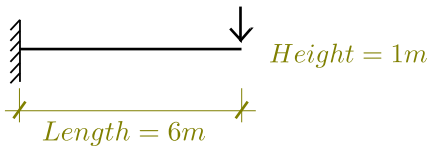

Figure 3: Problem description for cantilever beams

Numerical model:

When the force direction is perpendicular to the plane, only the bending deformation is calculated in 4NodeANDES elements.

The 4NodeANDES elements were shown in Figure (4).

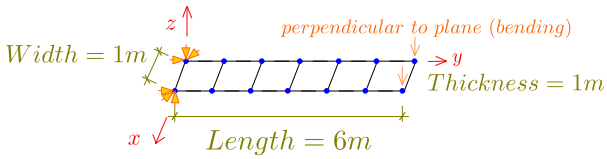

Figure 4: 4NodeANDES elements for cantilever beams under force perpendicular to plane

3 4NodeANDES cantilever beams under the inplane force

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, E=1E8Pa, $\nu = 0.0$. The force direction was shown in Figure (5).

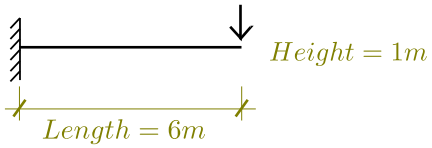

Figure 5: Problem description for cantilever beams

Numerical model:

When the force direction is inplane, both the bending and shear deformation are calculated in 4NodeANDES elements.

The 4NodeANDES elements under inplane force were shown in Figure (6).

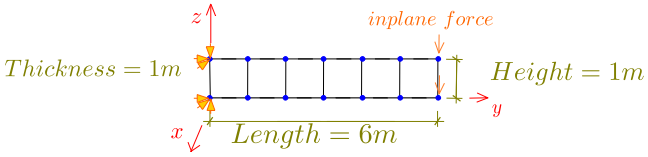

Figure 6: 4NodeANDES elements for cantilever beams under inplane force

4 4NodeANDES square plate with four edges clamped

Problem description:

Length=20m, Width=20m, Height=1m, Force=100N, E=1E8Pa, $\nu = 0.3$.

The four edges are **clamped**.

The load is the uniform normal pressure on the whole plate.

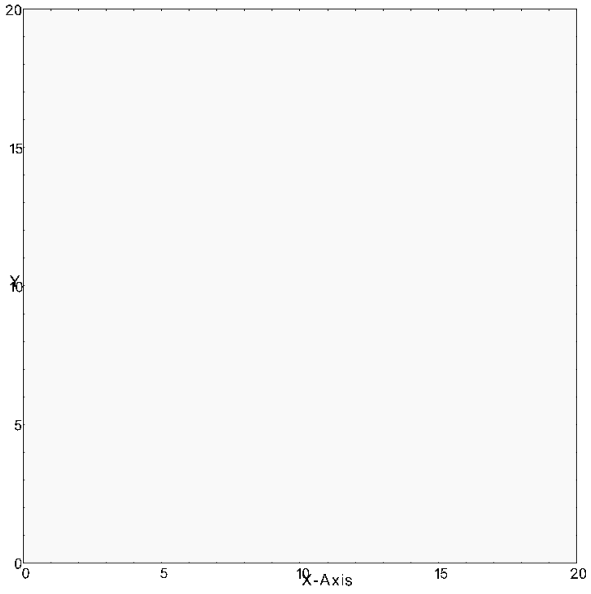

Figure 7: 4NodeANDES edge clamped square plate with element side length 1m

Numerical model:

The element side length is 1 meter.

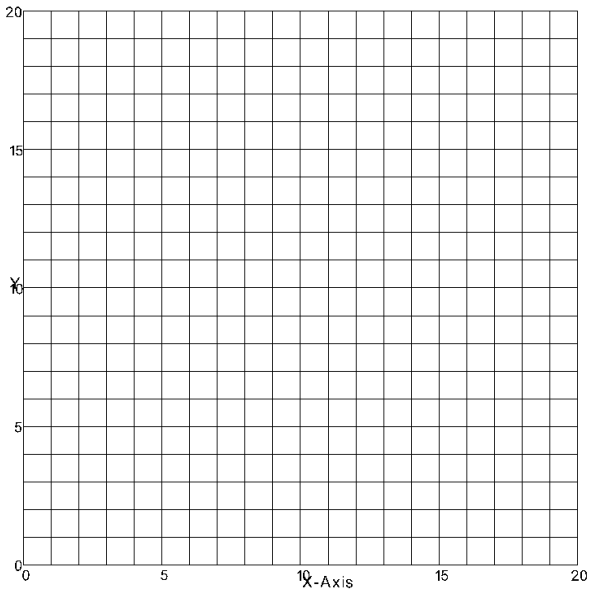

Figure 8: 4NodeANDES edge clamped square plate with element side length 1m

5 The presentation example with beam_elastic element

Problem description:

- Structure size

  Structure length=6m, Width=6m, Height=6m, Force=100N

- Element size

  Element length=6m, width=1m, height=1m, $\rho = 0.0$, E=1E8Pa, $\nu = 0.0$.

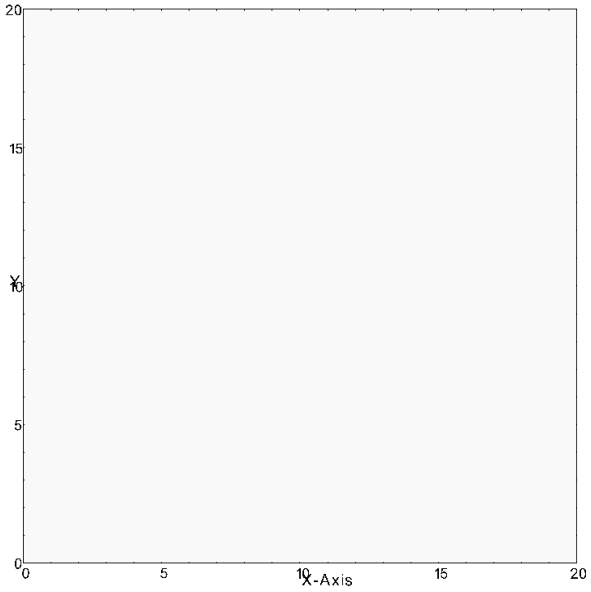

Figure 9: 4NodeANDES edge clamped square plate with element side length 1m

Numerical model:

The element side length is 1 meter.

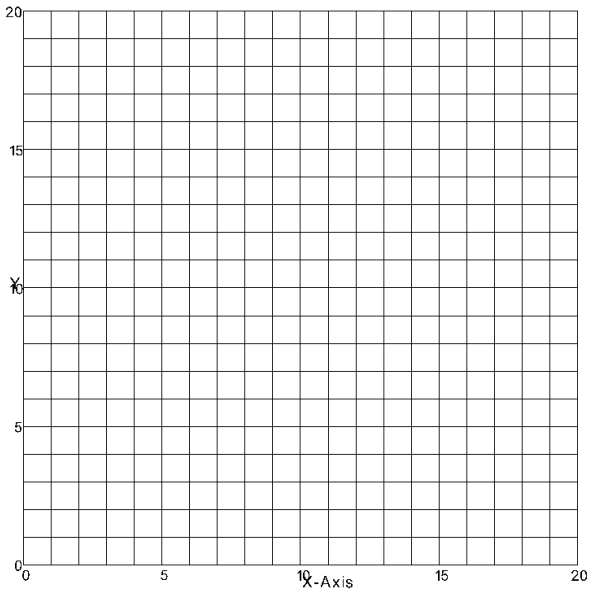

Figure 10: 4NodeANDES edge clamped square plate with element side length 1m