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1 27NodeBrick cantilever beams

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, $E=1\text{E}8\text{Pa}$, $\nu = 0.0$.

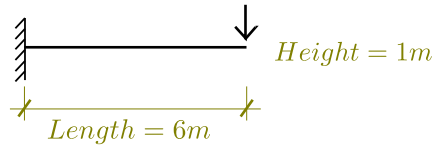


Figure 1: Problem description for cantilever beams

Numerical model:

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

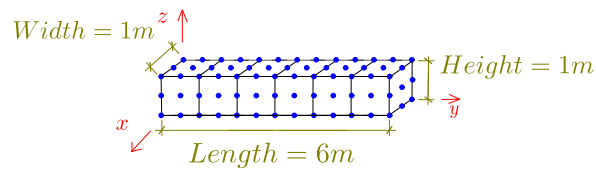


Figure 2: 27NodeBrick elements for cantilever beams

2 4NodeANDES cantilever beams under the force perpendicular to plane

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, $E=1\text{E}8\text{Pa}$, $\nu = 0.0$.

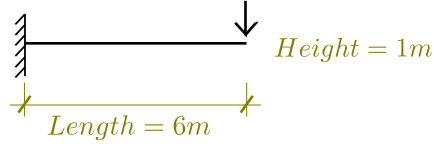


Figure 3: Problem description for cantilever beams

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).

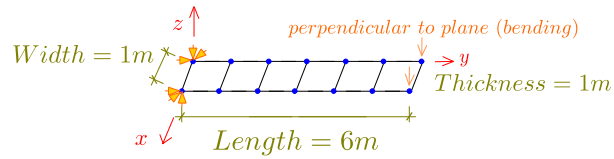


Figure 4: 4NodeANDES elements for cantilever beams under force perpendicular to plane

3 4NodeANDES cantilever beams under the inplane force

Problem description:

Length=6m, Width=1m, Height=1m, Force=100N, $E=1\text{E}8\text{Pa}$, $\nu = 0.0$.

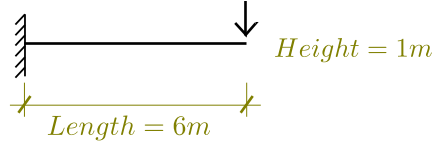


Figure 5: Problem description for cantilever beams

Numerical model:

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

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

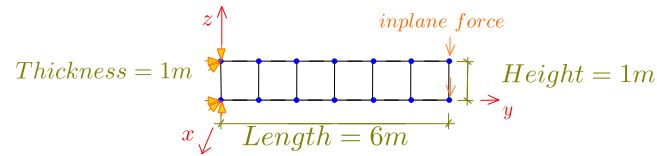


Figure 6: 4NodeANDES elements for cantilever beams under inplane force

4 4NodeANDES square plate with four edges clamped

Problem description:

Length=20m, Width=20m, Height=1m, Force=100N, $E=1\text{E}8\text{Pa}$, $\nu = 0.3$.

The four edges are **clamped**.

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

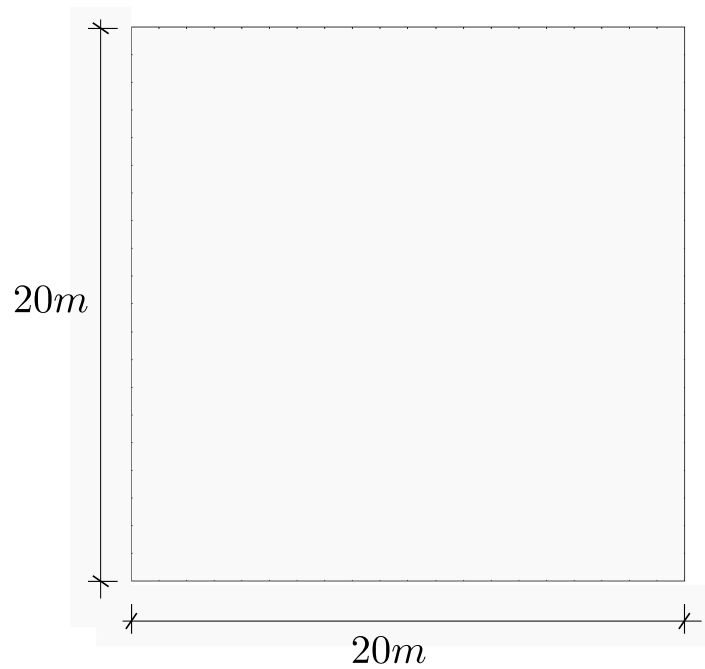


Figure 7: Square plate with four edges clamped

Numerical model:

The element side length is 1 meter.

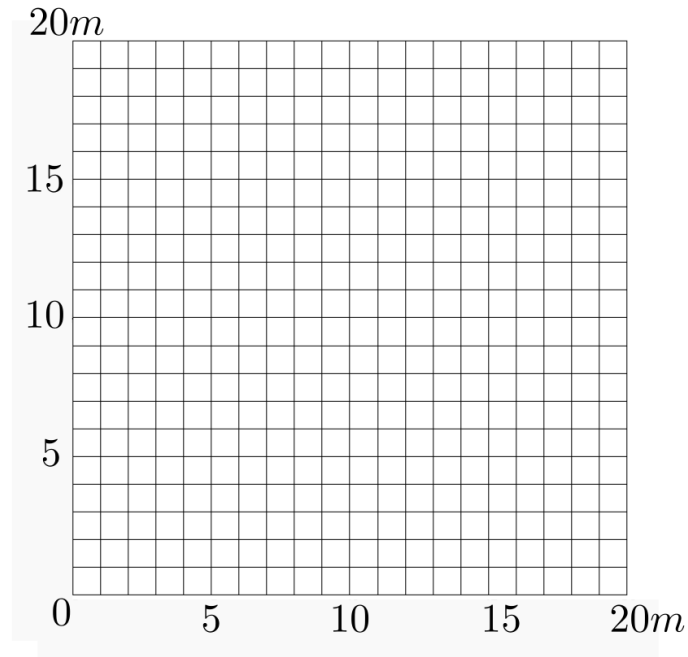


Figure 8: 4NodeANDES edge clamped square plate with element side length 1m

5 The presentation example with *beam_elastic* element

Problem description:

- Structure size

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

- Element size

Element length=6m, width=1m, height=1m, $\rho = 0.0$, $E=1\text{E}8\text{Pa}$, $\nu = 0.0$.

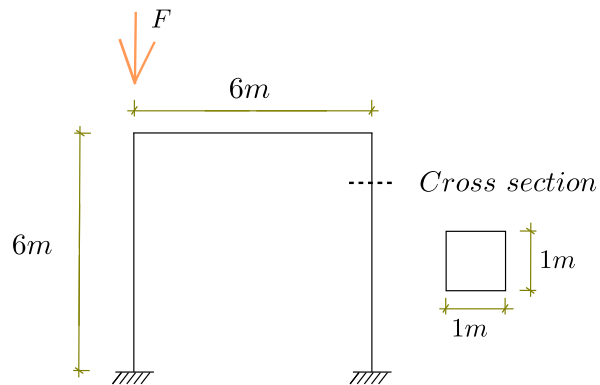
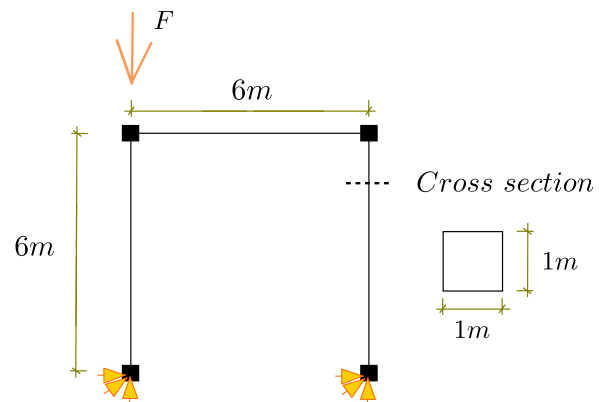


Figure 9: Problem description for the presentation example with *beam_elastic* element

Numerical model:Figure 10: The presentation example with *beam_elastic* element