Kementrian Riset Teknologi dan Pendidikan Tinggi
UNIVERSITAS BRAWIJAYA
FAKULTAS TEKNIK
JURUSAN TEKNIK SIPIL
Jl. Mayjend Haryono no. 167, Malang, 65145, Indonesia
Telp./Fax : +62-341.580120
http://sipil.ub.ac.id E-mail : civil@ ub.ac.id

TAKE HOME

Finite Element Method DD Class

(please do the following three questions carefully)

6.13 Determine the nodal displacements and the element stresses, including principal stresses, for the thin plate of Section 6.5 with a uniform shear load (instead of a tensile load) acting on the right edge, as shown in Figure P6–13. Use $E = 30 \times 10^6$ psi, $\nu = 0.30$, and $t = 1$ in. (*Hint:* The $[K]$ matrix derived in Section 6.5 and given by Eq. (6.5.22) can be used to solve the problem.)

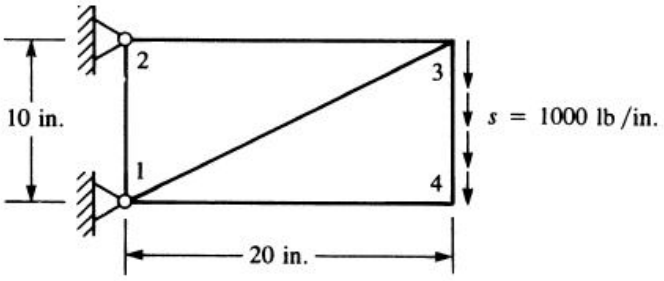

Figure P6–13

6.18 Can you use the plane stress or plane strain element to model the following:

a. a flat slab floor of a building
b. a wall subjected to wind loading (the wall acts as a shear wall)
c. a tensile plate with a hole drilled through it
d. an eyebar
e. a soil mass subjected to a strip footing loading
f. a wrench subjected to a force in the plane of the wrench
g. a wrench subjected to twisting forces (the twisting forces act out of the plane of the wrench)
h. a triangular plate connection with loads in the plane of the triangle
i. a triangular plate connection with out-of-plane loads

6.19 The plane stress element only allows for in-plane displacements, while the frame or beam element resists displacements and rotations. How can we combine the plane stress and beam elements and still insure compatibility?